Exploring record-keeping and the use of micros in the nursery school and class

Thesis

Exploring record-keeping and the use of micros in the nursery school and class.

Elizabeth Frances Moore
B. Ed. (Hons.)
The University of London

Submitted for the degree of Doctor of Philophy in the Psychology of Education.

The Open University, Milton Keynes. 29th Feb., 1988

Anna:

Perhaps. We are taught to love the fate we must accept. We see our life as a raindrop that runs down a twig, presently to be shaken off by the wind that brought it there.
We cannot alter its course.

(from "The Parliament of Women" a drama in three acts by Sir Herbert Read, 1960, The Vine Press)

The pages which follow have four photos of the micro equipment which was used in the experimental nurseries.

CONTENTS Page

LIST OF TABLES

ABSTRACT

The investigations which follow are exploratory in the sense that the topic is new and not that the methodology itself is innovatory.

The new research topic relates to innovation in both in-service education and nursery practice with the starting point being that micro-based systems of database management and word-processing may contribute to nursery record-keeping in the 1990's. Such a micro-based system was introduced as part of an experimental intervention with a sample of classrooms. This could be seen as pre-feasibility work towards the development of an "expert system" to help nursery staff with future curriculum development, implementation, and record-keeping.

The research question is: how might nursery record-keeping develop in the future, and in what conditions, and with what support? Factors associated with most successful outcomes in the experimental intervention were small nurseries, attendance of a full age-range of children, good quality curriculum, clearly differentiated staff roles, and prior record-keeping. (All classrooms were able to complete many procedures and were to some extent "successful".)

A comparison was made of nursery records developed, by staff, during the micro experiment with those obtained from

a national survey: there was a difference in that the micro-based records were more detailed. Analysis of individual participant responses also indicated that change in record-keeping practice took place during the intervention.

A survey of the views of the experimental participants and a comparison group of nursery staff found that both groups expressed a willingness to work outside set hours to aid the introduction of micro-based record-keeping. However, the experimental group had given more thought to uses for micros in their classrooms. When the responses of nursery assistants and teachers were analysed separately, assistants were found to be less in favour of record-keeping and using micros in nurseries.

Investigations, in the study as a whole, encompass a survey of under fives record-keeping throughout Britain and a detailed study of the keeping of official records in two contrasting LEA's. There are also critical reviews of relevant literature, the methods used for the investigations, and a final discussion of key themes.

ACKNOWLEDGEMENTS

I would like to thank my internal supervisor, John Oates, for his valuable support and guidance. I would also like to thank my external supervisor, Kathy Sylva, for all her much appreciated encouragement and good cheer (especially the claret). Tony Crowle gave me clear statistical advice for which I am grateful. I would also like to offer my sincere thanks to Molly Wedden, Vic Moore, and all my other friends and professional aquaintances who were so generous when I was suffering from "doing the thesis". Finally, I would like to thank every one of the participants who joined in the studies that follow.

NOTE ON PUBLISHED PAPERS

The content of Chapters 3 and 4 has been published as research papers:

Moore, E. and Sylva, K. (1984) A survey of "under fives" record-keeping in Great Britain. Educ. Research 26, 115-120.

Moore, E. and Sylva, K. (1985) The what and wherefore of nursery record-keeping. Brit. Educational Research Journal. 11, 3, 43-53.

PREFACE

The empirical studies which are described below were embarked upon because of a commitment to the value of record-keeping in nursery education. Record-keeping enables nursery staff, for example, to look back upon a child's progress, examine the present situation, diagnose, and plan for the future. Well kept records are likely to help nursery staff see and appreciate children as individuals and to view them as individuals in relation to one another and to the wider world. Nursery records may embody child development theories and be useful in conjunction with curriculum planning, but they should not dictate the overall design of a curriculum, because that would be as back to front as the tail wagging the dog (Clift, Weiner, and Wilson, 1981).

A second reason for this study was the writer's knowledge, from the fields of both technology and education, that microcomputers were about to make a contribution to education in general and that their potential in the field of nursery record-keeping might usefully be explored (Moore, 1978, 1980, and 1981).

Experience of a number of nursery schools and classes revealed a variety of record-keeping practices. Even the most well-organized records are time-consuming. The use of micros may enable a more comprehensive and efficient system

of records to be kept. The questions which arose were whether nursery teachers and assistants, unfamiliar with micros, would take to the idea of using them for this purpose; and what particular system would be appropriate and less time-consuming to handle and edit than traditional sheaves of paper records.

These questions were the starting point of the enquiry. There has been a great deal of improvement in computers recently in that those of the 1980's are designed to be acceptable and usable by "first time users" who have never previously encountered computers. There is therefore less need for an investigation of the hardware, software, and stages of implementation than for a study of the factors involved in a curriculum-related change. The micro-based system employed in the studies described in Chapters 5, 6, 7, 8, and 9 was both acceptable to and easily usable by most members of nursery staff. The main concern of the thesis is with changes and developments in record-keeping systems, present and future.

1. WHAT DOES THE LITERATURE SAY?

Introduction

The major purposes of this review are, first, to introduce the theoretical basis for the studies which follow: second, to identify points in the literature which suggest that specific topics should be investigated empirically: and, third, to analyse the framework for the studies which have been undertaken. The new investigations which are described in subsequent chapters are exploratory in the sense that the topic is new and not that the methodology itself is innovatory; the methods are traditional to the discipline of the psychology of education, but newly adapted to answer the research questions. (See: Chapter 2 - Rationale and methodology - for a critical appraisal of the instruments used and the overall design of this work.)

Existing literature directly concerned with British nursery record-keeping is related to a small number of manuals of assessment. The history of their development will be outlined where relevant. Obviously, construction of a further assessment manual would not be a creative step forward when a range already exists that is validated, in an everyday sense, by its use. This leads to two questions: first, what is the extent of their use? and, second, what methods of record-keeping are employed (or ignored) by nursery practitioners, and for what reasons?

In section A, the first question asked is "what is known about the state of current United Kingdom practice in nursery assessment and observation methods?" A late 1970's major survey of English and Welsh primary school record-keeping is discussed in order to point out a gap in our knowledge (no work on such a scale exists for the nursery context).

The second part of the literature review (section B) starts from the assumption that usually record-keeping and curriculum innovation are inextricably linked, even if one is not driven by the other. There is discussion of relevant work on curriculum change, in relation to the specific studies which follow; and connections are made with new information about the use of computers in schools. The starting-point, a novel idea developed by the researcher (see: Computer Age, 1978), is that micro-based systems of database management and word-processing may contribute to nursery record-keeping in the 1990's.

After the essential background theory has been discussed, focal questions relating to the theories of the function and context of record-keeping are addressed and relevant issues discussed, such as criticisms of assessment in education (section C).

A) Nursery record-keeping and its context

There has been a dearth of investigative studies in the field of nursery record-keeping, and even within the broader field of educational record-keeping with school-age children there is little evidence of work that goes beyond the merely prescriptive. Instead there are books, papers, and pamphlets based on received wisdom. Occasionally there have been clear-sighted practitioners and theorists who have been able to observe, interpret, and make recorded comparisons from their own experience of observing differences in children's development within the confines of educational settings (Isaacs, 1930, 1933; King, 1978; and Armstrong, 1981, for example). There have also been the milestone compilers of compendium guides to assessment: Thorndike and Hagen, 1969; Gronlund, 1976; and Goodwin and Driscoll, 1980. From the latter sources, or potted versions of them, nursery teachers have been able to follow guidelines, or select particular techniques and methods; but no-one has studied how they do this, or even the extent to which they make use of curriculum-related resources as an aid to record-keeping. Nor has there been any attempt to document the process of developing and using a nursery record-keeping system.

The literature on curriculum development and surveys of good practice is quite wide in the field of nursery education (McCreesh and Maher, 1976; Dowling, 1976; Parry and Archer, 1974; Gardner and Cass, 1965, are commonly read examples)

but apart from fleeting references to records and some common-sense recommendations, there is nothing to suggest that there are definitive answers to the problems: how to keep individual children's records, and the relationship between their content and educational objectives. This chapter, therefore, aims to define the problem of record-keeping specifically within the context of the nursery. The problem has been focussed on the sphere of record-keeping in nursery classes and schools, i.e. for 3-5 year olds within the state-funded system of LEA (Local Education Authority) provision. But some of the references that are made in this chapter, and later in the text, are drawn from further afield for the reason stated in the opening sentence: material relating to nursery record-keeping is sparse.

The two practical guides to record-keeping in the primary school are by Joan Dean (1972) and Peter Rance (1972). The former author is an experienced specialist and practitioner in the realm of children's reading and writing so there is emphasis in her book on the ways and means of fostering children's literary skills. The latter has worked as a school headteacher and has set out to write a book to help teachers and administrative staff to keep "tabs" on the children in their care. Rance has come up with some eminently practical solutions to the problem of keeping individual child records, how to store record cards, for example, to retrieve information quickly and easily.

However, he does not delve into the purposes and assumptions embedded in the task. Neither Rance nor Dean refer to any systematically collected evidence on which they base their suggestions. Instead they successfully fill a niche by providing material for teachers, headteachers, advisers, and HMI (Her Majesty's Inspectorate) who want a collation of practical methods of record-keeping.

A question which is relevant is how record-keeping is related to, or even dependent upon, accountability. There have been no studies setting out to analyse nursery record-keeping and its contribution to accountability. Nursery records, by their very tangibility, may be studied by the HMI and LEA advisers who are not able to spend long in the nursery and require some evidence of the children's progress. It is, of course, difficult to make comparisons between nurseries on the basis of how much progress the children make because there are so many differences between nurseries, the staff, the physical setting, catchment areas, and the children. The issue of accountability is clouded by the fact that nursery children are below statutory school age and hence objectives for their education have never been clearly stated and there is less pressure to state them.

The instigation of the Assessment of Performance Unit (APU) in the 1970's was symptomatic of bourgeoning interest in assessments of primary and secondary schools and comparisons between them. Nursery schools and classes were never part

of the APU's remit because their children are below the statutory school age. Both the near impossibility of the task the APU set itself and the changing climate of the times led to its demise, or at least to its wind down. Assessing children's performance is extremely difficult, so schemes to encourage accountability by individual schools were instigated. LEA school self-evaluation schemes were born, but the concept of self-evaluation was fraught with problems, too, and there was a lack of agreement between different LEA's as to what the term accountability meant let alone how it could be achieved. Still the search for means of assessing schools, teachers, and children goes on.

The nineteenth century notion of paying teachers by results never appears to have gone completely out of vogue. Present day political pressures towards teacher appraisal systems seem to be a part of the same idea that everyone who works in education should be accountable for their performance of their contract. The first British schemes of teacher appraisal are intended to help staff development and are not just a demonstration of accountability (Turner and Clift, 1985, 1986; and Turner, 1986). Nevertheless, the cost of financing the state education system is huge: the need for efficiency in running it has never been greater than today, when there is increasing stringency in respect of central and local government expenditure. Hence the understandable desire of the DES and others for accountability on the part of all concerned, in order to achieve value for money; but

education is concerned with more than the most economic use of resources in financial terms and therein lies the heart of the problem.

Even assessing education as an economic system with reference to the whole complex involved in schooling - buildings, staff and other resources - is vastly difficult. A report which discusses this is the Kent County Council Feasibility Study - "Education Vouchers in Kent: A Summary of the Feasibility Study for Kent County Council and its Conclusions", initiated in 1975. The section on financing the scheme is especially relevant in the light of the recent government proposal to sell schools to private companies and to implement voucher schemes for parents to use (Judd, 1986). Assessment is made even more difficult in that certain elements of education are undefinable and, thus, cannot be made to reach prescribed standards or judged to meet various criteria. Problems of definition and measurement abound, quite apart from the legal difficulty of holding a particular person or an institution accountable for standards at any particular point in time. Nevertheless, practical and theoretical guides to accountability are growing in abundance, as reported in McCormick, Bynner, Clift, James, and Morrow Brown, 1981; and Nuttall, 1982.

Assessment has been used in two main ways in education: first, in relation to the assessment of institutions such as

schools and the classrooms and teachers within them; and, second, in relation to the assessment of individual children. Accountability is concerned with both aspects as the recent literature clearly shows (Black and Broadfoot, 1982; and The Open University, 1982). The complex tasks of assessing schools and encouraging headteachers and staff to be accountable are tackled by HMI who as part of their work examine primary and secondary school records. HMI have not, however, carried out research specifically on the development of record-keeping systems.

The recently published surveys from HMI include those for primary, first school and early "special needs" education (Department of Education and Science - DES - 1979, 1981, 1983). The 1983 survey of provision for children of nursery age with special needs did cover, to some extent, the issue of record-keeping. It reported on the division between those nurseries which kept records and those which did not. It went on to make recommendations that accurate and reasonably detailed records should be kept and an "excellent" nursery which kept "excellent" records was described fully as an example to all. Following on from the 1983 survey, local initiatives were set up to develop nursery records.

The primary and first school surveys, on the other hand, did not concern themselves with nursery provision and concentrated on suggestions for improving curricular

provision for 5-11 and 5-9 year olds respectively. The HMI surveys, and sponsored local initiatives in specific curriculum or curriculum-related areas, appear to be helpful to the development of school practice. But resources to evaluate systematically the benefits or disadvantages of such initiatives, including the HMI survey publications, are rarely available. The single DES funded project to disseminate findings on under fives education was terminated after its trial year, although it was potentially a useful project, if difficult to evaluate (Hevey, 1982). The production of useful outcomes from the single research project into the impact and take up of educational resources was fraught with methodological and practical problems which mitigated against it (Steadman, Parsons, and Salter, 1978, 1980).

It could be that record-keeping is considered either too pedestrian, or too specialized a topic to attract great interest, or funds to allow major investigations. However, since beginning this present study the author has received and responded to about one enquiry a month from interested practitioners such as teachers, advisers, and researchers. At times when particular surveys were being conducted there were dozens of letters a week expressing interest. So grassroots interest and concern does exist. As most records arise from the curriculum, major funds and research initiatives focus upon curriculum development. Record-keeping, just occasionally, has received injections

of funding to provide cameos of practice. It may surreptitiously form a part of other projects, for example language development or early mathematics (Tough, 1976; Matthews and Matthews, 1978, for example). Also, when there are formal HMI inspections of schools, record-keeping systems automatically come under scrutiny and are reported upon.

The only time slices through the practice of school-based record-keeping have been provided by the National Foundation for Education Research (the NFER). The first ever national record-keeping survey commenced in 1949 and took until 1953. The next study, in a similar vein, narrowed its goals somewhat. This was sponsored by the Schools Council, and was conducted using NFER resources. It began in 1976, lasted two years, was staffed by three people and achieved publication in 1981 as "Record Keeping in Primary Schools". The first survey was staffed by one person and took six years before its final publication in 1955 as "Pupils' School Records". Obviously school record-keeping is a topic which requires a lot of fieldwork and full qualitative analyses which are time consuming. The present study which began in 1980 was carried out single handed, after some preparatory feasibility work, and completed in 1986.

Cross-sectional analysis of the state of record-keeping can reveal a great deal. Alice Walker (1955) discovered an almost total absence of "official" nursery records (that is

the "standard" forms supplied by LEA's), with just nine Authorities making reference to nursery school experience on their forms. She failed to make any study of records which schools had developed for themselves; that is, "schools own records"1 that relate to the curriculum and needs of particular children from a particular catchment area. However, she did make an analysis of the nine official nursery forms and found they varied from nothing more than a space for the name of the nursery to a record almost identical with that for the infant school. Most consisted of a mix of headings, prompts, or pick-a-word lists of nursery and infant school behaviour. Some of the suggested items would appear familiar today whilst others are decidedly anachronistic and relate to schools' monitoring of daily intake of cod liver oil, orange juice, and iron salts.

When the Clift, Weiner, and Wilson study of primary school records came to be published in 1981, school accountability was a much more frequently discussed concept than children's dietary deficiencies. Records for the under fives were not singled out as part of that team's research brief, however. So a straightforward comparison of early 1950's and late 1970's nursery record-keeping practice can not be made. But the Clift et al. methodology is interesting and worthy of description here. The team decided to visit primary schools

---

1 "Schools own records" is a technical phrase written consistently here with no apostrophe, c.f. Schools Council.

(N=97) to interview staff and take away samples of every record currently being used. They increased their sample size by obtaining descriptions and samples of records through the post from a further 95 schools. An evaluation was made both of these schools own records and official forms obtained from LEA officers. A complete set of the latter could not be obtained as a number of LEA systems were in a state of flux and not all LEA's responded to the request to send sample records. Additionally, six teacher groups were set up by the Clift et al. team to discuss principles of record-keeping and associated issues, evaluate record forms, and generate and modify alternatives. These groups met over the course of a year and were provided with discussion papers produced by the team. Also, data were analysed in relation to records kept in open plan schools, and one case study was made of an infant and junior combined school which was going through the process of revising its record-keeping system. At the end of the project there was dissemination of results, mostly funded by individual LEA's wishing to take advantage of the researchers' expertise. It was thus an ambitious study which quite literally covered a lot of ground.

There remain unanswered questions about nursery record-keeping generally and, more specifically, whether team teaching and planning in nurseries is in any way as beset with problems as the Clift et al. data suggest. On arrival at one school which had declared itself to be open

plan in terms of staff organization, they found staff had reverted to working on their own again, because they found the task of monitoring children's progress and sharing written information with one another as part of team teaching just too onerous.

It is also unknown whether or not the purposes of record-keeping for under fives share much with that for children who have reached the statutory age for schooling. Whereas it is known that records are expected to be kept about every child of statutory school age such records need not be kept on the under fives, and decisions on the matter rest with headteachers. The Clift et al. study did not address questions about the development of standard LEA records for under fives, such as when such records were designed, who participated in their design, and whether they were connected with programmes of school evaluation.

Confidentiality in relation to school records began to be dealt with when "1984" was looming on the horizon (Clift et al., op. cit.; Hodges, 1981). The data protection act has since been passed and naturally changes have been evinced as people become sensitive to the problems. The parents of consumers of education have been told that they should dictate what they want from education (Taylor, 1976; Rogers, 1986) so, with the instigation of more publicity and pressure groups, "open" school records could come about. Little is known about nursery staff knowledge or

understanding of parents' attitudes towards the issue of confidentiality. Normally parents have limited access to nursery records: they may read nursery records and even make contributions, but the extent of this practice has not been studied. It is likely that some parents would fail to understand the purpose or content of such records, as another study has shown some parents to be unaware of the educational purpose of many common items of nursery class provision (Tizard, Mortimore, and Burchell, 1981).

An additional gap in our knowledge of the field of nursery record-keeping is how much the form and content of nursery records tallies with recommendations for practice which are based upon the developmental psychology literature. Ever finer observations and experiments are conducted in the field of pre-school learning (for example, Donaldson, 1978, Bridges, 1977; Hughes, 1977; Lomax, 1972) but the extent to which these studies filter into nursery applications is unknown.

Although the Clift et al. study helped towards an understanding of record-keeping generally its only case study was of a primary school which had no nursery provision. Additionally, the main sample of their study was too disparate to allow even primary school comparisons on the basis of LEA provision of records or other variables. The participating schools were not randomly selected either, but chosen by LEA officers as "good record-keepers" and

were, therefore, a biased sample. So there have been no studies of reluctant or non record-keepers. Nor have there been specific studies in particular LEA's about the detailed practices of nursery record-keeping. There are open questions, for example, as to what extent official records are supplemented by schools own records and whether the existence of official records fosters more extensive record-keeping.

There has been one study, set in Scotland, where a psychologist devised a record-keeping system in collaboration with a newly appointed nursery school headteacher. This appears to have been a very useful case study in an LEA with no official nursery records. Carol Lomax (1977) reports that the project was a success in that the nursery assistants used the records for the experimental period of two years. (The term nursery assistant is used here to describe a person working as a nursery nurse with or without Nursery Nursing Examination Board - NNEB - qualifications. A nursery assistant is not a nursery teacher with teaching qualifications and DES registration.)

At the end of the Scottish record-keeping experiment, all seven nursery assistants claimed the records were too time consuming for them. The headteacher had chosen not to complete the records herself. When six additional headteachers from other local nurseries were asked to look at the record forms, they said they saw possibilities for

using them to train nursery teachers but that modifications would be necessary before they could be used for a similar purpose with nursery assistants whom they thought would experience difficulty with the section on number, for instance. It was notable in relation to the purposes of record-keeping that most of these headteachers said they would not normally pass on information about children's behaviour and skills to the primary school, and none of them mentioned the showing of records to parents.

There has been just one study which showed differences between nursery assistant and nursery teacher assessments of children (Gipps, 1980). There were problems with this piece of research and the result that nursery assistants were more generous in their ratings of children may, to some extent, have been confounded by the fact that the assistants were working with extremely disadvantaged children in day nurseries, whereas the teachers were working with a more normal spread of children in schools or school-like pre-school centres. There was a very small sample of teachers (N=8) so, again, there is a need for caution in accepting the result that nursery assistants rate children as "more able" than they are shown to be in objective observations. Whilst that study raised questions about nursery assistants and their biases or skills when keeping records it did not set out to investigate the part that assistants might play in record-keeping. Cynthia James (1981) on the other hand, in her capacity as a nursery

inspector for the Inner London Education Authority, made a straightforward recommendation that they should keep records. The same notion was later supported at HMI level (DES, 1983). It is not known what general LEA consensus there is about this. Nor is it known how well nursery assistants would be able to take advantage of an in-service course related to record-keeping; nor how interested they would be in attending such a course. There are two points to take account of here: problems with interpretation of record-keeping items between different groups of staff, and problems of interpreting items without the benefit of a foolproof manual accompanied by discussions to cross-check interpretations of such a manual.

Back in the 1970's the first attempt was made at designing a system of records which nursery teachers, nursery assistants, and other childcare workers could use, regardless of their prior knowledge of developmental theory (Evans and Sparrow, 1976). According to these authors the idea of such records was so innovatory that they would be seen by many educational psychologists as an encroachment upon their territory of testing and assessing young children; so they concluded that whilst child care workers and others who know the child well could record information about developmental stages of children, it was up to the educational psychologist to interpret the data. This was the background to the National Children's Bureau Developmental Records for the 0-5 age range. Although this

system did not progress beyond the experimental stage it was a useful breakthrough in criterion-referenced testing, in contrast to the norm-referenced IQ tests from Binet, 1905, onwards.

Prior to the National Children's Bureau project there were published (and unpublished) scales that were employed mainly by paediatricians and psychologists to help them make judgements about a child and alert them to cases of developmental delay or handicap. Such scales were linked to accepted theories of development and examples of the pioneers of such scales include Gesell and Armatruda (1949), Sheridan (1975), and Illingworth (1977). There have also come into being tests to ascertain a child's level of language development (Reynell, 1977), visual perception (Frostig, 1966), psycholinguistic abilities (Kirk, McCarthy, and Kirk, 1968), and social progress (Gunzburg, 1977) amongst other things. Such assessment intruments are subject to criticism as the theory upon which they rest may crumble under attack from dissenting theorists. Therefore, psychologists and other users are expected to keep up with the relevant critical literature.

Apart from the innovatory National Children's Bureau system none of the scales and tests mentioned above was intended for direct use by teachers and nursery assistants who would normally have less access to essential journal discussions than would the educational psychologist or paediatrician or

researcher. It is still the case in 1986 that a nursery teacher may receive results of the Reynell Developmental Language Scale on children in his or her care, but not administer such tests. What has changed is that nursery staff now have at their disposal some "ready-made kits", i.e. pre-designed systems of records based on developmental theory, and made commercially available after being tested in the field by the developers (Tyler, 1980a; Bate and Smith, 1978). In addition, the Mary Sheridan developmental scales have now been published in a form (1975 edition) which makes them more readily accessible and appropriate for use by nursery staff. In the USA, the Portage Project devised a combined curriculum and record-keeping system based on a behavioural approach to learning, and designed for use with handicapped children from birth to five years (Bluma, Shearer, Frohman, and Hilliard, 1976).

What is unknown is the extent to which nursery staff are aware of the existence of any of these "ready-made kits" and how much they use them. Another question which may be posed is how do such commercially produced forms of checking child development "fit" with other means of recording notes about children. Teachers may have grown accustomed to recording their own notes and may not wish to employ a new method which would replace them. A third question is whether or not such kits are compatible with LEA recommended practice on nursery record-keeping; that is, how would an official LEA record be used in parallel to one of the commercial

systems? A fourth question is whether or not nursery teachers have gone further than Evans and Sparrow predicted and make interpretations of their observations and assessments of children's behavour. Fifthly, it is problematic whether there is much two-way communication between nursery staff and educational psychologists and others professionally interested in the well being and development of nursery children.

Since the 1976 review of the field of assessment of early childhood development (Evans and Sparrow, op. cit.) there has been published a practical critique of currently available assessment instruments for the under fives (Bate, Smith, and James, 1981). This helpfully criticizes and describes a large segment of the available tests and record-keeping forms with a guide as to who is the intended user of each.

The Portage Project materials are not included in the Bate, Smith, and James critique because they form a curriculum package as well as assessment guide. The materials have been reviewed elsewhere, however (Shearer and Shearer, 1972; Wilcock, 1981). Recently there have been many descriptions and references to the use of these materials by parents and other people working with young children with special needs in the United Kingdom (Cameron, 1982; and Booth, 1983, for example). They form a curriculum and checklist record system which accompanies specification of behavioural

objectives and task analysis by the adults, and compliance, attendance and imitation on the part of the child. The materials are intended to be tailored to suit individual children. An understanding of, and sympathy with, the goals and methods of the materials is needed, but lengthy training in their use is not required.

As their review of assessment instruments was being prepared, Margaret Bate and Marjory Smith were also working at the NFER on the development of a Manual for Assessment in Nursery Education which was published in 1979. It was specifically designed to be used by qualified teachers. Other people such as nursery assistants would only be entitled to use it under the guidance of a teacher. One of the difficulties of this manual appears to be its length and the time that would be taken in completing even a shortened version of the assessment procedures for a single child. As was pointed out by the seven nursery assistants in the Carol Lomax study it is very time-consuming keeping records and doing all the observations necessary for such records.

As a counter to such elaborate nursery record systems Stephen Tyler designed a much more compact and visually quick to read chart of development (1980a). Still the system requires a great deal of time to test the children and contrive the situations whereby this may be done as "naturally" as possible, that is by the adult judging how to participate in the child's play and ask questions and make

assessments during this. Both the Keele Preschool Assessment Guide by Stephen Tyler and the NFER Manual for Assessment in Nursery Education are criterion-referenced. The NFER conducted and reported validity and reliability checks on the latter, but the former reports no such checks and so is termed, like the National Children's Bureau guide, "experimental". Technical validity in terms of testing what it declares itself to be testing and reliability, in terms of repeatedly similar interpretations of items, form only part of any validation procedure. The NFER Manual may have achieved this first part of validity/reliability but fail to be of use in practice if it is too long and is not sufficiently closely related to what nursery teachers want as a help to their work with children. With the exception of Portage, no follow-up studies have been reported on nursery staff use of any of the "ready-made kits" of nursery assessment guides named above.

It is unknown whether or not nursery staff view making assessments of a child separately from their making observations of a child. Assessing is defined here as comparing specific items of child behaviour with pre-set descriptions of such behaviour; making assessments may mean asking the child to respond to specified tasks or letting assessments take place when the child spontaneously engages in certain activities. Observing is defined here as studying and noting what a child does whilst engaged in normal activities. Do attitudes towards the two tasks

differ if they are viewed separately? There have been books which have, at least in part, aimed to teach observation skills to pre-school staff (Medinnus, 1976; Webb, 1975). There have also appeared publications from researchers posing pertinent questions in the pre-school field and pushing forward the methodology of observational studies (for example, Smith, 1970; Krebs, 1972; Sylva, Roy, and Painter, 1980; Smith and Connolly, 1981). Many unanalysed and unpublished pre-school observational studies abounded in the 1970's in Great Britain and have been documented by Ronny Flynn (1981). So there is a fairly wide literature and accumulated experience about the making of observations in the nursery, as well as on making assessments.

However, nursery record-keeping as a whole has never been a topic which received much attention; nor has it even been defined. One way to define it is in relation to its functions. As the context of nursery record-keeping was described above, some of the purposes were introduced. As has already been seen, the type of record-keeping which is being discussed in this study is that for the benefit of individual children and can be distinguished from class records to document the flow of activities and structure of the programme to be provided. The purposes of records range from being for the benefit of children whilst they are in the nursery to those which are transfer documents when a child leaves to join the infant school. (Infant school is used here as a term of convenience for the institutions

which cater for the youngest children of statutory schooling age i.e. five years upwards. The term subsumes first schools and infant/junior combined schools.) The degree to which nursery records serve either function is not known.

As mentioned above, parents can be both recipients and contributors to records, so cooperation with parents may also be a purpose of records. Just as in 1976 it was thought that teachers might not be adequately grounded in developmental theory to grasp and interpret the intricacies of records (Evans and Sparrow, op. cit.) it is unlikely today that more than the most radical of nursery staff open up their records to parents for reasons which may include their belief that parents might not understand such records. This purpose of records may be entwined with what is known about parental relationships with pre-school staff (see: Smith, 1980, for example). To investigate deeply this single purpose of records is beyond the scope of the present project.

Potentially nursery records can be used by educational psychologists, speech therapists, health visitors, social workers, and representatives of other agencies. What is unknown is the extent to which sharing information with agencies beyond the education system is deemed by nursery teachers to be an important funtion.

With or without the help of ancilliary agencies a main

purpose of records may be to help plan individual programmes with a view to maximizing children's potential. Such a notion is embodied in the applied psychology literature (Furth, 1976; SNAP, 1983; Cameron, op. cit.; Jeffree and McConkey, 1976; Jeffree, McConkey, and Hewson, 1977). Again, however, it is unknown as to the priority which might be given to such a purpose. In a sample of 62 nurseries, including a subset for special needs cases only, HMI in 1983 found 80% were keeping records, but most were for transfer and not viewed as good enough, or kept regularly enough to benefit individual children. Only a few nurseries (one-sixth of the record-keepers) were found to be keeping reasonable records that were of any use at all in forward planning. In the majority of cases where there were records at all they were poorly kept, lacked sequence, included items of varying significance, did not allow aspects of child development to be compared easily for a single child, and had poor groupings of items. So if a major purpose of nursery records is to help individual children, many actual records appear to be less than adequate for such a purpose. The HMI sample of nurseries was not a random one and may not be representative of record-keeping practice generally, but it does suggest that low priority is given to the task and quality of record-keeping itself. More needs to known about record-keeping practice in the nursery and about policy on this issue at the LEA level.

The section which follows considers innovations and the potential use of microcomputer technology in the context of nursery education. Whilst the thesis aims to document contemporary record-keeping in Great Britain, it also attempts to explore future changes in record-keeping via an intervention experiment which employs a micro. Because innovation is a curriculum-related matter which is central to the thesis, some consideration of curriculum change is necessary. The relevant areas of literature relating to educational innovation need to be presented briefly and selectively since the whole field of curriculum change and development literature has grown enormously. The crop of teacher effectiveness publications reached 3041 by 1986, for example, and it would not be relevant to examine every one of these although it can be argued that teacher effectiveness is associated with the quality of records kept about individual children and the use which is made of these. Section B) aims simply to make references to reviews of the field which have some bearing on the subject of the thesis, and to provide an introduction to the studies which have been undertaken.

B) Educational innovations in relation to the nursery

Introduction

Record-keeping is a curriculum-related matter and thus changes and development in record-keeping are interconnected with the frameworks for curriculum change. This section will concern itself with a) the context of curriculum change; b) examples of curriculum change in the nursery; c) evaluating innovations and existing practice; d) a new way to examine one curriculum-related change in the nursery; e) innovatory uses of the new technology in education. The aim is to introduce briefly the broad context of curriculum change, and stability, that directly, or indirectly, has some effect on nursery teaching in Britain. Specific examples of changes in nursery practice are then given to provide a brief introduction to the range, origins, and outcomes of such curriculum work. This is followed by reference to the topic of evaluation of curriculum change and the difficulties inherent in the task. The early sections of the chapter set the scene for an innovatory method to be proposed by which one example of curriculum-related change (i.e. nursery record-keeping adaptations) may be monitored. This method involves the trial use of new technological items in the form of micros, so reference is made in the last section of this chapter to the escalating use of the new technology in education.

a) The context of curriculum change

Curriculum is being used here in the broad sense of the term. As Denis Lawton indicates (1983) "A narrow definition of curriculum would limit it to content, that is, subjects on the timetable and what is taught under each of those subject headings. At the other extreme, curriculum is used in a very wide sense to include not only what is taught, but how it is taught and why. This would include curriculum evaluation, control and classroom interaction." In its broader sense, curriculum in the nursery may encompass record-keeping and curriculum development and planning, as well as immediate work which is directly with the children.

Although nursery staff themselves have a large part to play in any curriculum change and comprise a major component of its context, control is exercised to some degree by HMI, LEA's, and by the materials and publications which result from research and development, or from pure research projects. Pre-service as well as in-service education and training are both instigators and support frameworks for change.

The first major collection of work on educational innovations in curriculum in the USA was edited by Miles (1963). This does not include material on nurseries but does examine curriculum change in a wide range of contexts and Miles attempts to formulate a coherent theory of factors leading to innovations in education. He explains how

difficult it is to sum up the 250-odd generalizations which his book contains. One generalization is that national programmes of change are necessarily complex because of the size and nature of such operations; educational changes appear to be modified by local factors, from the mobility of pupils and staff in schools to the views of politicians. Miles cites the fact that educational innovations continue to grow in quantity and their success is sought by strongly motivated proponents. Yet the diffusion rates for educational change are still not as high as those for change in industrial, agricultural, or medical systems. One explanation for lack of change in American schools is given by Schon (1963), for example, who says that, at the level of individual schools, change may be hard to initiate and instal without what has been called a "product champion" or "change agent" who will work continuously to further such change.

More recently, Whitehead (1980) has distilled such ideas about the mechanisms and problems for developers wishing to distribute new curriculum ideas. He agrees there is no simple solution and the search for finding one or two key factors is misguided and a satisfactory theory of educational change, including curriculum, will need to be very detailed and consider each level of educational organization.

A comprehensive description of the sequence of events and

the current issues still hotly debated in the field of curriculum change is provided by Tony Becher and Stuart Maclure (1978). They say that curriculum ought to be dynamic in as far as society is dynamic: political thought itself changes with changing views of social class and social justice, for example. Psychological theories of children are also subject to change and such changes affect attitudes of the public whose views and wishes are reflected in the curriculum. In Britain, which has a more or less decentralised system of education, there is no simple way to effect change. In fact some of the most creative, and possibly best, aspects of British education may be associated with this very wide distribution of power and initiative in curriculum development.

Becher and Maclure present the English and Welsh Schools Council of the 1970's as an example of an attempt by a decentralised system to organize curriculum development on a non-directive basis. There was a change in 1978 away from the Schools Council constitution with its very strong voice for the teachers' trade unions. The old belief that teachers themselves held responsibility for curriculum development gave way to even greater control by politicians when the Schools Council was abolished in the early 1980's and reconstituted as two bodies under government control: one for curriculum matters and the other for examinations.

In the 1970's the Schools Council was still able to promote

a range of school-based and subject-based projects. Those in the field of primary or nursery education included ones on play (Manning and Sharp, 1978), language (Tough, 1976), early mathematics (Matthews and Matthews, 1978) and primary records (Clift et al., 1981), for example. The results of such projects may have led to policy changes at the level of individual members of staff, schools, LEA's, and pre-service training institutions as well as nationally. However, such changes are not necessarily easy to discern or quantify. As the last chapter intimated, an attempt (funded by the Schools Council) during the late 1970's to document the impact and take up of research and development project resources did not succeed in the sense that the final report did not achieve circulation beyond a limited number of draft copies. However, its conception and attempt to monitor something so intangible made a useful contribution to the field.

Speculation has recently been made about the possibility for the new technology to change the curriculum in a wide-reaching way (Meighan and Reid, 1982). Those authors argue that technology is altering society so greatly that more people will stay at home to work and that children will learn at home, to a greater extent than ever known previously. Meighan and Reid suggest that the relative stability of school curriculum and its gradual evolution over the last century may abruptly change as children study at home and employ "distant learning" techniques transmitted

through microcomputer programs and video devices. The schools would then be freed to concentrate on fostering the "personal education" of pupils: nurturing the individual and aiding the development of moral and prudential virtues, rather than acting as conveyors of objective knowledge. This does not seem to be likely to happen for a reason that Meighan and Reid themselves offer: the British curriculum is fairly stable and subject to natural growth rather than sudden changes of emphases for external reasons. As far as nurseries are concerned, they have always attempted to nurture and foster the individual qualities of children rather than acting as purveyors of facts. There are, however, questions as to whether generally they will remain untouched by the new technology and how any curriculum-related change affects them.

This section has attempted to set the scene of curriculum change by providing a definition of curriculum in its broader sense and making refences to work on educational innovation in the USA and in Britain. The Schools Council was used as an example of a force for change which employed teacher and teacher union participation and was not dictated entirely "from the top". Some of the studies in this thesis describe a change in nursery curriculum: a move towards systematic record-keeping. It is hope that a focussed look at stability and change in record-keeping will add to our understanding of change in education.

b) Examples of curriculum change in the nursery

The purpose of this section is to identify examples of programmes of curriculum change in the nursery. Evaluations of curriculum change are usually in terms of child outcomes, but the degree of availability of materials and level of nursery staff acceptance and take up are also relevant to evaluations. Unfortunately, in most cases there have been no systematic studies of the factors leading to such changes.

The EPA programme is an example of a large-scale initiative designed and implemented with the intention of alleviating disadvantage. Curriculum change in the nursery was one component of the EPA programme. There was also an attempt to alter the relationship between school and community (Halsey, 1972). Specific changes were evaluated (Smith, 1975) and the gains by children who graduated from EPA pre-schools became increasingly "washed-out", i.e. initial impact lessened with time. The nursery staff acceptance and take up of the curriculum changes may not have been sufficiently high for there to be more lasting effects. Alternatively, child outcome measures may not be the most sensitive means to tap the results of particular curriculum changes.

Reported use of language teaching kits in the USA and the development of theoretical models to support this (see Blank and Solomon, 1969; and Bereiter and Engelmann, 1966, for

example) led to an English experiment. The Peabody language development materials were first tried out in England in the early 1970's. A summative evaluation of an experiment concerning their use was conducted by Martin Woodhead (1976) who found that children made intellectual gains if they took part in a structured language programme based on Peabody and, therefore, suggested such a programme be used more widely. Despite recommendations that more structured work would be beneficial to the children, nursery staff rejected the materials as being too separate from real life and the teaching situations as being too artificial. They were supported in this by a report on the high quality of their work by Marianne Parry and Hilda Archer (1974), but criticized for what they failed to do by Barbara Tizard (1974).

Another approach to work on language involved a wide network of teachers. The Plowden report (DES, 1967) may have led to this programme of research and development work aimed to foster language and communication skills in children (Tough, 1977). The disappointing results which showed relatively little measured effect on the children did not prevent the programme from being widely disseminated. Published materials included books and videotapes for teachers to use, and many courses have been organized around these. Support for this dissemination arose after publication of the Bullock report (DES, 1975) which emphasized the importance of language.

Another recent curriculum development project had the starting point of wishing to obtain nursery staff ideas about the pre-school curricula they were offering. The best of these were sifted and formed into the "My World" handbook for nursery staff to use in their work (Curtis, 1980). The theoretical and practical orientations of the project have been documented in the book "Meeting the Needs of Socially Handicapped Children" (Curtis and Blatchford, 1981). When a later research study investigated the effects of elements of this curriculum on a small sample of disadvantaged children there were found to be positive gains made by children who experienced the structured activities (Dye, 1984).

Pre-school curricula in Britain are difficult to define and compare because common terminology is not shared amongst practitioners. A programme of "change" was tried out recently with the specific intention of teaching a framework within which staff could build their curricula. The process of introducing the High/Scope pre-school curriculum (Hohmann, Banet, and Weikart, 1979) was monitored. The results of the first phase of training "trainers" to teach pre-school staff show that changes in staff goals and behaviour did occur, but long term effects on the children are not known (Sylva, Smith, and Moore, 1986). Whether or not there will be wide scale dissemination of this programme is also unknown.

The curriculum development and evaluation methods, in the

examples above, vary from the government policy on EPA to implement immediate change to the more laissez-faire publication of the "My World" book with the expectation that nursery staff could choose to buy it and use some of its ideas. The two language development programmes may be contrasted with each other in terms of their origins and the circulation of their findings and products. Peabody language kits were rarely used by nursery staff after an initial trial period in the early 1970's. No nursery staff practitioners had been involved at the development stage of Peabody. There was a wider and continuing take up of the Joan Tough materials, perhaps because many teachers had been involved in its development. Although this section has been limited to examples of curriculum change in the nursery the Clift et al. (op. cit.) study of primary school record-keeping will also be mentioned again here because one component of the study was a series of teacher groups led by the researchers and offering for discussion and use a range of materials. This is likely to have had a large effect on those who participated because, in parallel to the Joan Tough work and other developments such as the liaison groups in early education (Bate, 1983), active participation of the teachers was sought. However, one of the problems that remains facing theorists grappling with curriculum change are the lack of studies of the factors leading up to change: there are mainly studies only of the consequences.

c) Evaluating innovations and existing practice

Although fraught with methodological and practical difficulties, attempts to evaluate pre-service and in-service education for teachers have continued on both sides of the Atlantic. Such evaluations have been documented in a review of the literature by Ted Wragg (1982). There appears to be a difficulty in that radical moves towards curriculum change may not be sustained by teachers when they finish a course. Some changes are maintained as Hargreaves and Grey report (1983), but not as many as when the "entrepreneurial agent" was subtly leading and supporting such change. Change is sometimes measured in relation to "teacher effectiveness" but such a notion is not a separate and easily measurable entity (see: Kyriacou and Newson, 1982, for example). It also seems likely that there are difficulties inherent when monitoring curriculum change, and to a lesser extent its proponents; these may be related to the difficulty of monitoring and defining curriculum per se (Blenkin and Kelly, 1981; Kelly, 1982; Dearden, 1968).

There is a belief held by some that educational goals are either extremely restrictive or impossibly vague and banal. In his diary entry for 22 January, 1941 Harold Nicolson wrote: "Winston refused to make a statement on war aims. The reason given in Cabinet is that precise aims would be compromising, whereas vague principles would disappoint", a sentiment which is equally apt in respect of educational aims and objectives.

In order to help nurseries evaluate their own provision, aims and objectives appear helpful, however, so some LEA advisers as well as individual nursery school headteachers have held in-service courses to help staff specify these, analyse their curricula, and describe the activities and materials they provide in order to achieve their global aims and precisely specified objectives. The effects of such courses on objectives and curriculum change have not been studied on a large scale.

Very few studies of pre-school innovation include a means of distinguishing individual nurseries. The Martin Woodhead (1976) study is no exception in that it did not take into account differences between nurseries which tried out the new language teaching materials and methods; such differences may have affected the results. The Clift, Cleave, and Griffin (1980) study of the aims, role, and deployment of nursery staff took no account of initial individual differences between nurseries. The framing of the research questions in those two studies excluded investigations of differences between nurseries. The Sylva, Smith, and Moore study (1986) was prevented from investigating individual differences between "demonstration" pre-schools because of their small sample sizes (N=10 pre-schools for the survey of staff and N=5 pre-schools for the observations of children). Although their sample sizes were larger, the Clift et al. (1980) and Woodhead (1976) studies did not divide nurseries on the basis of details of

curriculum types found, for example, in relation to observed measures. Unlike most other studies, the Sylva, Painter, and Roy (1980) work was concerned with curriculum variation, so an operational definition of curriculum structure was made so that there could be an examination of children's behaviour in relation to this.

In order to gain a greater understanding of changes in practice which may follow educational innovation, monitoring could include more than the traditional "predictor variables". It is possible that a predicting factor as to why nursery staff take up particular innovations is their existing propensity to innovate. For instance the first trial nurseries to test the NFER Manual for Assessment in Nursery Education may have already been expansive keepers of notes on children's progress. It is known that the LEA's which gave the names of schools with innovative schemes for parent involvement later gave almost the same set of names as being schools with innovative schemes for record-keeping. So one type of innovation may go hand in hand with another, or even foster a climate which welcomes changes, offering enthusiastic responses to stimulate further innovation, and, presumably, evaluating the merits of each innovation and change for better or for worse. Goodwin and Driscoll, op. cit., provide an account of how changes and established features of pre-school settings may be evaluated objectively.

Other factors relevant to the evaluation of innovations may be quite straightforward "givens", i.e. type and size of nursery, staffing level, and management arrangements. Others are a more complex set of givens and occurrences which accompany the innovation. In the past, educational outcomes have been investigated in relation to particular innovatory interventions, but scant attention was given to the wide range of mitigating or militating features. It appears to be very rare for consideration to have been given to the full set of relevant predictor variables and the processes which occur. Analyses of individual responses have also been swept under the carpet when a "clean" picture of some nursery staff data sets were being attempted. For example, nursery assistants were asked in one study to write their comments about a particular questionnaire but, because there was a low rate of written response, a decision was made that the comments should not be taken into account (Gipps, 1980).

Qualitative data sets, which need not be readily quantifiable, appear not to have emerged in all fields of educational psychology research. Becher and Maclure (1978) pinpoint the shift from a behavioural psychology paradigm to one incorporating social anthropological and social science research methods: "To a quasi-scientific evaluator the schools appear as unmanageable as a Mad Hatter's tea party, occupying a world in which samples are never really representative, variables can never be held constant, and

changes in behaviour - even if, as seldom happens, they can be accurately measured - do not adequately reflect the intellectual processes to which they are intended to equate. The raw data acquired in such studies are often suspect, because the measuring procedures are so crude; and it is no more appropriate to subject them to sophisticated techniques of statistical analysis than it would be to work out to five significant figures a calculation based on measuring an area of uneven ground with a yardstick." Older-style research in education concentrated on tightly-formulated experiments, for example with treatment and control group subjects chosen to be representative of the population. Little attention was given to the processes which occurred during the experiment treatment and differences between subjects. This style of research also included surveys which were <u>not</u> designed to elicit respondents' elaborations on the topics in question. It is likely that educational research in the late 1980's will steer a course between the two extremes and individual differences and processes will be taken as much into account as were the measured outcomes of older-style research.

Examples of the problems of evaluating innovations have been described above and a review of the literature on pre-service and in-service education and training cited. Although aims and objectives provide a clear means by which a curriculum can be constructed and then evaluated, the sustaining of curriculum change and the measuring of any

such change or flux are not easy to accomplish. To ground the problems of evaluating curriculum change, they were considered in the light of recent research studies. The gaps in these studies are that differences between nursery settings are not usually taken into account. Secondly, the individual responses of nursery staff members are discounted. The empirical studies in this thesis attempt to take account of such factors.

d) A new way to examine one curriculum-related change in the nursery

Now that some of the factors which may be involved in curriculum change and some of the problems of evaluation have been delineated, research questions may be asked concerning innovations in record-keeping. There is no single method for answering these questions as both surveys and experiments have pitfalls (see Wragg, op. cit., for example, for further comments on this).

One way to investigate innovation in record-keeping would be to examine the effects of new technology on it. In most people's minds this new technology in the 1980's means micros. Computers appear to be capable of acting as helpful tools in the task of record-keeping, for the display of curriculum-related prompts, the storage of information about aspects of individual children's development, and to display such information in a range of ways as an aid to staff team planning and to help maximize nursery children's potential.

They have not been used for this purpose previously although there have been investigations of pilot installations of computer-streamlined school administration records for secondary schools (Bird, 1982). Secondary school systems of computer managed administration have now become fully implemented, as the early stages of development suffered only from teething problems and inconveniences caused more by the technology itself than by staff dislike of it.

The research literature does not address itself to the problem of introducing micro technology to nursery staff, but it does suggest there is some resistance to the introduction of technological items generally (Moore and Hunt, 1980) and to curriculum change in particular (Benett, 1980). Such resistance has been attributed to dislike of innovations which may be associated with particular attitudes. Scales of attitudes have been used many times in education contexts since Oliver and Butcher (1962) defined certain dimensions. Although predictions about nursery staff success with micros could be in terms of constructs such as tendermindedness and radicalness, it has been decided that attitudes in isolation will not be studied here. Instead the responses of nursery staff to the introduction of a micro-based record-keeping system will be investigated.

Benett (1980) did make a psychological analysis of teachers' attitudes to curriculum change; he found that the dynamics

of teachers' attitudes are such that very strong associations cannot be expected between these and personality variables. He also emphasizes that the social and environmental context of curriculum change needs to be taken into account when ascertaining how teachers adapt. This gives added force to the present research decision to examine the whole context for future micro-based nursery record-keeping.

Experience as a factor on its own and as a modifier of attitudes may also play a part in willingness to participate, also in the level of such participation in an innovation. The outcomes associated with experienced record-keepers versus the inexperienced need to be observed when changing attitudes occur in response to the introduction of curriculum-related resources (such as micros). Also data would be helpful on the extent to which nursery staff, in general, can adapt to change and make use of an innovatory in-service course on record-keeping.

It has been proposed here that to study the use of micros as a record-keeping tool in the nursery would be one means to investigate a curriculum-related change. Take up of micro-based changes can be considered by examining responses in relation to nursery staff experience of record-keeping and differences between the nursery settings in which they work.

e) Innovatory uses of the new technology in education

The aim of the final section of this chapter is to survey relevant areas of the technology in schools literature which have some bearing on the application which will be described in Chapter 5. It is interesting to note how the "computers in education" literature has flourished since the first micros came onto the market in the late 1970's. Previously, there had been concern amongst educational technology researchers and developers at the lack of success in the assimilation of innovation over the previous 20 years in both the USA and in Britain (Hooper, 1977). Much that has been written from 1980 onwards has been by enthusiasts for micros and read largely by other enthusiasts. The British government had given major support for the exploitation of the new technology when they funded the National Development Programme for Computer Assisted Learning (NPDCAL) from 1973-77, under the auspices of the Council for Educational Technology. From then onwards, there has been continuing and growing support for technology initiations in the sphere of education - the largest of which to date was the national Microelectronics Education Programme (with a parallel organisation in Scotland) and the Department of Trade and Industry injection of free or subsidised micros into schools together with software, and training courses for teachers.

A major change occurred shortly after Richard Hooper declared in 1977 that there had been relatively little take up of the new technology despite the development of ideas

for learning programmes (e.g. "PLATO" systems) and embryonic computer-assisted mangagement of learning techniques. There was then the first feasibility study for the use of computers in the nursery and infant school (Moore, 1978). That study was an investigation into the use of mainframes, mini computers or the very new micros for nursery and infant use in the sphere of documenting children's progress and providing learning games. After an analysis of the hardware and software available or capable of development the conclusion was that micro-based record-keeping could be feasible and that it deserved further investigation.

There have since been been speculations about the extensive use of micros and the new technology in education generally (Hawkridge, 1983; Maddison, 1983) and with respect to children's learning by Seymour Papert (1980). There has been a great range and change of ideas about the use of computers since the first appearance of "programmed learning" in the 1950's and 1960's which Oettinger has reviewed (1969). But as the technology rapidly developed in the late 1970's it was difficult to publish books which were fully up to date with the latest ideas about software development and Nick Rushby's book which aimed to be an introduction to educational computing was already out of date, with respect to hardware developments, when it was published in 1979. A more recent "state of the art" study of computer applications in education was published in 1983 by Morley Sage and David Smith. However, the most

comprehensive review of the whole of the educational computing literature, with special relevance to the secondary sphere of schooling has been undertaken by Patsy Macintosh (in preparation).

The shrewd may have been able to guess how the technology would develop in the late 70's, beyond the NDPCAL era, into the 1980's, with the arrival of micros that are more powerful than many mainframe computers of the 70's. Not only is this new breed of computers more sophisticated and usually easier to use than earlier models, but also they are more affordable by schools, small businesses, and people at home. The next requirement may not be for better machines, but for better programmes to run on them. There is also a need for good ideas for new applications that fit sufficiently well with the best elements of existing curricula, but which would not contribute to curricular stagnation.

A clear review of problems in implementing the new technology in education was published by Brian Champness and Ian Young (1980). From their social psychological perspective they were able to analyse previous "failures" and to suggest specific social limitations in the take up of educational technology. They recommended that social scientists should help shape and influence educational technology to overcome disappointingly low take up of technological resources. The refusal of teachers to accept

the new technology was considered by Champness and Young to be a result of innovators' failure to prepare the ground for their innovations and to maintain good public relations. They suggest analyses of social contexts and individual needs in relation to change would therefore be helpful. Also many technologists have appeared to operate with distorted or biased models of "resistant teachers" which fail to take account of the social structure of education.

Research questions in relation to the new technology abound and have been raised in relation to special education (Bennett, 1982; Brown, 1982; Budoff and Hutten, 1982; and Hofmeister, 1982, for example), and in primary education (Elder, Gourlay, Johnson, and Will, 1983; and Garland, 1982, for example), and in secondary education (Macintosh, op. cit.; and Grossnickel, Laird, Cutter, and Tefft, 1982, for example) and in the area of educational mangagement (Jones and Dukes, 1983; and Ragghianti and Miller, 1982, for example). However, there have been no systematic investigations in respect of the nursery sector. Would it be easy for nursery staff, as novices with the technology, to learn to use micros? If they did take micros fully on board could they adapt to the changes, for example, and the possible increase in hours of working and the likely imposition of new routines? As a baseline for such speculation, what is known about existing day-to-day use of common "technological items" by nursery staff? Such data would be very interesting to examine <u>before</u> micros are

introduced to nurseries. In other sectors of education, changes have been examined after the introduction of the new technology.

It is possible that the introduction of items such as cassette players was so natural a part of curriculum extension in the nursery that no measurement on a "Richter Scale" of curriculum change would have been registered. However, the introduction of nursery micros, could rate as much as a sizeable earthquake!

The elements of change which may be associated with such an introduction of micro-based record-keeping are described and discussed in Chapters 5-9. Before that, the "state of the art" of nursery record-keeping is examined in relation to policy on a national scale in Chapter 3, and in greater depth at the level of individual nurseries in Chapter 4.

There now follows the final section (C) of this literature review: it aims to make a critical appraisal of record-keeping.

C) Is there any point to record-keeping?

Introduction

This section addresses central theoretical issues concerning the function of school record-keeping, namely:

1) types of record
2) critical reservations
3) society and values
4) validity and reliability
5) effects on children
6) social control of schools
7) teacher education
8) diagnosis and remediation
9) teacher concerns
10) structured curricula
11) evaluation and change
12) public relations
13) transfer documents
14) parents
15) curricular integration.

Types of school record

Records may be categorized as (a) those produced (designed and distributed) by LEA's, (b) those produced externally (for example by the NFER or Moray House), and, (c), those constructed by schools themselves. As to their format, they may be summed up as being on a continuum from a small number of open-ended prompts to long sets of precisely-formulated

questions, suited for particular groups of children. Externally produced records are most often of the latter type and large batteries of them would be needed to cover all aspects of a child's progress through the school years. Standard LEA records, for the complete age-group (3 to 19 years) are likely to comprise a series of open-ended prompts that permit a range of responses about a child's progress and circumstances. LEA's may then have additional sheets or folders relating to specific stages and aspects of schooling, for example language skills, junior mathematics, attitudes to schooling. Schools themselves may devise their own systems of prompts and precise questions to guide assessment, as well as electing to employ LEA forms and externally produced tests and guides to record-keeping.

Reservations about records

Conceptual overlap, ambiguity, and confusion in the use of terms relating to educational assessment are initial hurdles to be overcome when developing and using any system of records. Hence major textbooks on the topic (Jackson, 1974; Deale, 1976; Open University, 1981; Satterley, 1981; Potton, 1983; Black and Broadfoot, 1983; Black and Dockrell, 1984; Frith and Macintosh, 1984; and Spooncer, 1984, for example) devote a great deal of attention to defining the terms they use when discussing the issues and recommending "good practice".

The implicit theory embedded in such texts is that an

understanding of record-keeping contributes to teachers' skills and aids their ability to teach. Nowhere in the "normal" literature (that is excluding works on de-schooling) is there a sustained argument against the keeping of records, although a number of reservations are proposed in relation to:

a) the mismatch of record format with the actual curriculum offered and the educational priorities upon which it rests

b) records which contribute to the stagnation of curricula

c) "teaching to the test" i.e.; limiting teaching to what is assessed or assessable

d) lack of staff expertise in constructing clear records

e) ineffective and inefficient use made of the material collected

f) bias in assessments of girls and minority group children

g) inadequacies in documenting information about children with special needs.

No particular type (in terms of source, structure, and content) of records seems more likely than another to eradicate such reservations. Instead the standard texts suggest ways to appraise the strengths and weaknesses of record forms and their objectives. Good quality in-service work is recommended as necessary to encourage common interpretation (within a school, or between schools in the case of transfer records) of formats, choice of words, and discussion of both positively and negatively viewed functions of records (Clift et al, 1981; Black and

Broadfoot, 1983).

Externally produced tests and their theoretical assumptions are regularly and usefully criticized in the research literature (for example, Buros, 1986) but LEA systems and schools' individual methods, with their eclectic theoretical underpinnings, are not usually subjected to such public scrutiny. So much of the work to maintain the highest quality of most useful records lies with the recommendations of HMI, LEA advisers, tutors, lecturers, teachers, and the writers of the practitioner literature.

Society and values

The theoretical starting point, in many of the texts for practitioners, is to set out ways by which school staff can respond to such reservations as society itself poses. In the analytical research literature, Raven (1983) presents a positive approach which supports discussion of morality in relation to decisions about the content of records. Such an approach is deemed necessary before the value issues can be dealt with. Raven also is concerned that teachers may teach towards what is assessed and override what they value as priorities in education. These are major problems and one solution would be to broaden the qualities which are assessed at school, by employing greater quantities of scales with greater ranges, in a new system of psychometrics which explicitly embodies values. Yet this would surely require even more teacher time to administer, more pupil

time to complete, and further resources to interpret and act on. So unless Raven's proposed system of expanded psychometrics is expressly fitted to the curriculum (and is responsive to curriculum changes), it is in danger of taking time and resources away from the task of teaching.

Perhaps an ideal and flexible version of the system that Raven proposes is possible, but teachers using it would need to develop the necessary commitment to individual ways of working with children so that the collection of detailed information about them could be justified. Increases in resources for education would still be required for such an ambitious plan.

In Raven's view, psychology has a key role in helping teachers analyse the systems they work with, so that they can influence attitudes prevalent in society, change peoples' expectations, obtain greater resources, and foster a climate for innovation. He asserts that all this is compatible with extending systems for monitoring the progress and characteristics of children.

With any system of school records there is concern that there may be a great deal of unconscious bias before, during, and after assessment of children from minority ethnic groups (Oakland, 1980; Bowker, 1984; Swann, 1985; Broadfoot, 1986; Chatwin, 1986). It follows from this that less biased frameworks for school records need to be sought,

perhaps by discovering new ways to identify talent. The use of tests which may limit educational and vocational opportunities needs to be questioned. Broadfoot (1986) however, is pessimistic about change towards more egalitarian systems of assessment, because market forces (decisions to reduce allocation of funding) seem to cut short such developments; and she cites an English and Scottish case study to support the view that little change is in sight and old social divisions will continue to be reinforced.

Concern about records exists: Clift et al (1981) and Hodges (1981) provide worrying examples of information about the criminal acts of children or famililies which was recorded, yet discovered (by chance) to be totally inaccurate.

In a minority of societies, educational and work opportunities are offered on the basis of lotteries (Wood, 1986). Examination results and school assessments are usually employed in the selection of school leavers for jobs and college placements; and hence information needs to be accurately recorded, and thoughtfully selected by headteachers. British society in the late twentieth century has developed into a heavily "credentialled" one; and work opportunities are often limited by the recorded results of educational achievement. "De-credentialling" does not seem likely to happen in the near future (Collins, 1979).

A decision has been made, for this thesis as a whole, to discuss major issues for the British context. Main references are to the British applied research and practitioner literature because of cultural variations and the fact that theories relating to recommendations to teachers in other countries (such as in Europe and the USA) are somewhat different in contextual terms. It is noted that the cultural origins of ideas are very complex and not at all easy to track down definitively; elsewhere such sources could be compiled to form a critical discussion of the contribution by particular societies or milieus to school records, but that will not be done here because it would form a quite different undertaking. Instead, where a substantive idea, from any society, is essential to constructing the proposed framework for the thesis it is included.

Validity and reliability of records

Validity is hard to obtain in any record system because of the great amount of cultural variation, and the difficulty of making any test or observation objective (Pring, 1984). It is a problem if records do not serve the function for which they are intended. Assuming that the structure and content of records has been made as valid and relevant as possible, their reliability becomes an important question. Adequate ways of monitoring and checking for accuracy need to be developed and implemented in parallel with regular appraisals of validity (Open University, 1981).

Records and children's perspectives

Pressures on children to obtain high results in tests and good school records may be so great that they suffer harm, and even death, cf reports of Japanese child suicides. Children do worry about the records kept on them and hence this theme has recently been incorporated into a television series targeted at them (Redmond, 1987); and on recent documentary programmes - and in the press - there are pronouncements that it is good for children as young as seven year olds to know they are "failures" (for example, Letwin, 1987). The latter point of Letwin's is morally and socially questionable; the issue relating to effects of knowledge of poor school records on the personal and social development of children needs further investigation.

Records and control of schools

As indicated above, there are concerns that records can be detrimental to some children, but what concerns are there in relation to the possible negative effects on schools? Records which show the results of assessments of children's progress may also be used to judge and compare schools, and to check standards over time, i.e. to monitor curricular decisions and "productivity". Comparisons between schools are by no means simple because of inequalities in terms of "given variables": the children, the settings, the human and material resources. It is a complex task to compare one school with itself over time, let alone with others.

There is also a problem of the use to which such information may be put: should "good" schools get more funds than "bad" ones or vice versa? Should the notion of compensation for a poor deal be abandoned or reinstated? The present government has stated its views on both questions, so the cultural, political, and temporal context requires attention when analysing any framework in which theories of record-keeping may be interpreted (Raggett, 1985).

Further questions relate to the problem of records of tests and assessments being used to monitor a centralized system of schooling: what happens to ideas about originality in relation to curriculum work? Might innovation and imaginative teaching decline? Will teachers teach to the test? Or are they likely to be suspicious of pressures to do so?

Records to train teachers

The implicit assumption of many education textbooks is that teachers are not willing or able to form anything other than a stereotyped view of a child's achievements and abilities until presented with a means to help them make the best use of the records they write for themselves or ones written by other teachers. Dowling and Dauncy (1984) recommend that nursery and primary school staff need to develop specialized skills to do this in addition to gaining theoretical understanding of child development. It is agreed in the literature that making observations and assessments can help

students extend their knowledge of children, and improve the quality of later work (Webb, 1975; Medinnus, 1976). Practical skills are fostered when student nursery teachers and nursery nurses are required to make notes of children's physical appearances, relationships, emotional states, skills, actions, speech, and experiences. This training is viewed as valuable in itself, as only some nursery staff write records as a routine part of their work when they are qualified (Clift et al, 1980).

The practical skills of different forms of "child study" are only part of what teachers are expected to accomplish during training. Barrow (1984) and others believe less in the power of such practical skills than that teachers should acquire central concepts which are coherent and mutually compatible: then they may consider issues such as the nature and problems of record-keeping, in relation to their own practice. There is a movement against narrow skills training which might leave teachers able to cope competently with the Keele Preschool Assessment Guide or Croydon Checklist, for example, but not able to contribute to the national debate on the testing of seven year olds. To do the latter and to respond creatively to future issues, teachers need understanding of principles and not merely increased repertoires of "know how". It may be noted here that there is a sharp contrast in the initial training of nursery nurses and the education of teachers: courses for the latter are deemed far more demanding of analytical and

intellectual skills. Such differences in expectations about the role of teachers affect both training and later practice (Clift et al, 1980).

Records for diagnosis and follow up

One purpose of records is to help individual children through constructive reminders to staff about particular facets of a child's experience and make-up. When staff use such information in their interactions with the children they can increase the amount of their individually focused work, much recommended by HMI (DES, 1983). Having an all round picture of each child and details of particular developmental facets is likely to be much more constructive than simply to cursorily label and "write off" a child.

Educational psychologists engaged on the task of assessing children with special needs may find no helpful documentary evidence in the nursery school or class (DES, 1983); and when records are found, it is not known what use is made by nursery staff of the information recorded. Merely recording facts such that particular children are on the abuse risk register and the extent of their injuries is a practical first step, but does not change anything unless provision for the children is adapted to help them cope with trauma, for example.

Access to "sensitive" information about home circumstances as well as progress at nursery may be required by

educational psychologists, social workers, speech therapists, the police, health visitors, nurses, doctors, and other specialists. It is generally agreed that case conferences to decide a child's future are helped by the availability and discussion of accumulated nursery records (i.e. ones recording information over time). Records are likely to help productive liaison between agencies which are concerned about a child, though as was seen in the Cleveland child abuse case, records cannot compensate for lack of effective liaison between agencies.

In general, teachers are likely to support records used for diagnosis and follow up if these can be seen to be effective.

Teachers' criticisms of records

Teachers may share many of the criticisms of record-keeping indicated above and voice additional ones, not least that classrooms are not good places to carefully monitor children's progress and diagnose sources of difficulties, and discover where children have gone wrong, before re-direction onto better lines (Bennett, Desforges, Cockburn, and Wilkinson, 1984). Chazan, Laing, Shackleton Bailey, and Jones (1980) found that teachers were likely to under estimate children's capacities compared with the results of tests conducted by trained researchers. Chazan et al observed, for example, that very young children who had never been heard to speak more than one or two words in

class could be persuaded, in an intimate test setting, to utter a full sentence. Classroom constraints can clearly hinder the making of assessments.

The source of teachers' criticisms of record-keeping has never been investigated. Negative views seem to arise after reflection on experience and exposure to peers, tutors, and texts which spell out objections to particular forms of assessment, observation, and "bad" practice. Different stances of teachers may mean that collations of informal observations (i.e., anecdotal and serendipitous ones) are as unacceptable to some as more formal tests and structured observations are to others. Some texts and teachers do express vehement opposition to the maintenance of school records of many kinds (Booth, 1983); this may be due to concern about the uses to which such information may be put.

The theoretical assumption of Doherty and Conolly (1985) is that teachers are also concerned about the reliability and validity of their assessments. Findings in Doherty and Conolly's study show new evidence that teacher estimations of primary school children's attainment in mathematics and English and reading can be significantly under estimated and over estimated, in comparison with test results. They find biases in ratings of some children, for example the "tidy" ones appear to be rated more highly on the basis of their tidyness.

Effective assessment and observation methods are sought by teachers responsible for very young children (Curtis, 1986); these teachers obviously do not have standardized attainment tests in reading or mathematics by which they can check their impressions about the children's abilities, in order to teach appropriately.

Many teachers find their current systems of pupil assessment inadequate: they may seek help in monitoring the progress of children with special needs (DES, 1983) and those who learn English as a second language (Swann, 1985).

A rare minority of teachers may be enthusiasts, willing to try every available type of record-keeping system in an effort to adopt or adapt the best. But some teachers criticize any written record of a child because they reject "labelling" of particular qualities and capacities (Clift et al, 1981; Steadman and Gipps, 1984). Assigning global labels on the basis of performance at single tests (with a limited set of items) is beset with difficulties of validity and the permanence, or self-fulfilling qualities, of such labels. A child <u>can</u> be mis-labelled. In the devising and administering of any form of assessment, there can never be total impartiality. (The pseudo-impartiality of machines administering tests and generating test items is obviously not real, because people design and implement such systems, French, 1986.) A balanced position for a teacher is to undertake to develop a full understanding of the strengths

as well as weaknesses of any system of monitoring children's progress (Satterley, 1981).

Criticisms of structure

Teachers can be very negative about any constraints which are imposed on their professional autonomy, which has been traditionally fostered and valued (Makins, 1987). To some nursery teachers (and some tutors in Education Departments) structured curricula, such as that proposed in a High/Scope-type framework, are viewed as possibly detrimental to the needs and interests of young children in the United Kingdom, whatever positive outcomes may be obtained for High/Scope "graduates" in the USA. Some teachers oppose some kinds of structured curricula and think, for example, that adult-led group activities should be voluntary for children (Dowling, 1976); but teachers who oppose structured curricula may say they concentrate on work with individual children and that they are in favour of keeping some records. This is compatible with HMI recommendations for systematic record-keeping and, in contrast, for relatively unstructured programmes to foster the development of under-fives with special needs (DES, 1983).

Curriculum evaluation and change

Record-keeping systems are not separate from curriculum work; theorists assert that both require continuous evaluation and change (Zigler and Balla, 1982). In the

field of pre-school and primary school work the name of Susan Isaacs (Isaacs, 1930; Isaacs, 1933) is strongly connected in many people's minds with curriculum evaluation and change, made known through recorded details of the Malting House School events: especially the behaviour of individual children.

Isaacs recorded her carefully considered reflections on what individual children experienced in relation to the group setting, and engineered ways to extend their capacity for independence and self-regulation, for example. The Susan Isaacs' curriculum embodied change that exploited resources, facilities, social mores, and theories of knowledge and learning which were available in the 1920's to '30's. In addition she invented her own fresh visions of what education might be like for children in the future. Her recordings of individual children's responses and initiations in the school setting were part and parcel of this process; she demonstrates she was successfully engaged in a cycle of making innovations, evaluating the educational programme, and monitoring the progress of individual children.

In the 1980's, Susan Isaacs' approach would not have been likely to throw out of the window the keeping of records as part of the process of curriculum innovation, even if the means available to her might have changed somewhat, with the typewriter's technogical descendant: the wordprocessor.

Teachers may be critical of tests and assessments being used as a force to promote certain types of change (such as that embodied in the proposed 1988 Education Act for core curricula and testing at 7, 11, and 14); and yet be in favour of individualistic innovations like those of Susan Isaacs, or Edith Moorhouse.

Records for public relations

Records can be one sign to governing bodies, LEA's, and the DES that all is well with a school and classes within. Nevertheless, there is no statutory requirement for records of individual nursery children, just as there is no requirement that children of three and four years should be educated in a school system. It is up to the LEA and individual school what nursery records are kept beyond the minimum of registration documents and the preservation of relevant correspondence. Such records which are made to suit people outside the nursery itself can be distinctly bland and presentable in tone if the sole purpose of records is to show the progress of the children and thus act as sales documents selling the value of the nursery in terms of positive gains to its "graduates".

Teachers are likely to be critical of records kept only for public relations purposes.

Records as transfer documents

Whilst records between nursery and infant class may suffer

from being sales documents, this need not always be the case. The best records may be expertly produced and highly relevant to the receiving staff. However, even the best transfer records can be improved when accompanied by oral discussion to clarify points and reduce misinterpretation (Dowling and Dauncey, 1984). Despite efforts to produce good quality records, the receiving school may make minimal use of them at point of transfer or subsequently (Clift et al, 1981).

Teachers who get limited feedback from receiving schools may resent time being allocated to the development of records used only for transfer purposes.

Records for parents

Teachers have not usually had any formal preparation (during initial training or in-service courses) to help them report their assessments to parents (Goacher and Reid, 1984). It is extremely unusual for British parents to have access to the full files of their childrens' school records (Hodges, 1981) and, only in extremely rare cases, do they contribute as acknowledged equals in the education of their children. Rarely are parents encouraged to contribute specifically to the process of monitoring their child's progress, and changes in negative attitudes of professionals towards parents seem to occur very slowly (Smith, 1980). In contrast, an experiment is taking place to share responsibility for medical records with the parents of

under-fives (Macfarlane, 1986). Parents appear to be greatly in favour of this innovation.

Records for curriculum planning and implementation

In an ideal world, records of individual children would be integrated fully with other teaching activities so that the teacher and nursery nurse are making maximum use of what they know about the children (Dowling and Dauncy, 1984; Curtis, 1986; Chazan, Laing, and Harper, 1987). Their knowledge would influence how they plan for groups and individuals; it would affect positively the ways in which they respond to the interests, abilities, handicaps, and problems of the children, and their families. The practitioner literature clearly recommends as much.

Summary

In this chapter, issues about school record-keeping generally (for 3 to 19 year olds) were discussed with reference to specific points:

a) types of records
b) critical reservations
c) society and values
d) validity and reliability
e) effects on children
f) social control of schools
g) teacher education
h) diagnosis and remediation
i) teacher concerns

j) structured curricula

k) evaluation and change

l) public relations

m) transfer documents

n) parents

o) curricular integration.

Each one of the points could be investigated further, but what was aimed for above was a critical appraisal of key theoretical assumptions and explicitly prescriptive ideas embedded in the research and practioner literature. Obviously not all the points can be dealt with again in the empirical studies that follow, because that would be too broad an undertaking for one thesis. The thesis to be explored will attend to the themes of: practice, support, training, and "the future"; the research questions focus on what is happening and how change might occur.

There now follows an analysis of the methods used in a focused undertaking to investigate aspects of record-keeping in the context of the nursery school or class.

2. RATIONALE AND METHODOLOGY

Time

After completing piloting work, the experimental intervention in thirty-eight classrooms covered a period of two years and ten months. The three major surveys in the study were designed and administered over a total period of four years. The bulk of the analysis for the study as a whole took more than two years to complete.

Methods

The Great Britain survey

No survey to ascertain knowledge of nursery record-keeping practice has been undertaken since the 1940's when the NFER study began (Walker, 1955). Therefore, an individual approach to all United Kingdom advisers with responsiblity for nursery work was necessary to answer two key questions: what is the extent of nursery record-keeping? and what support is there for this in the 1980's?

Initially, a letter of inquiry was sent to all Chief Education Officers, addressed by personal name. The letter was not pilot tested or subjected to any extensive redrafting; it simply asked for samples and details of practice of under-fives record-keeping in each Authority. This led to a wide variety of interpretation as to what was

being asked; nevertheless, responses which were usually interesting and, only occasionally, offensive. There was a low overall response rate (less than 50%) and the variability of information received was enormous. The low total response rate may have been related to the time it took advisers/officers in the LEA to consider deeply what was being asked of them and to construct original letters of reply. (Some went as far as to encourage advisers to conduct mini surveys of practice which were sent with samples of school record forms.) Whatever the reasons, this initial approach did not provide sufficient width of information to describe an overall picture or even estimate the extent of official record forms available to nursery teachers.

(However, such a survey did provide good contact with many advisers and the names of Authorities that were keen to participate in further work, such as case studies of record-keeping practice in a city and a county.)

The follow-up to the initial approach was the Great Britain questionnaire which was designed and specifically targeted for personally-named people of adviser (or education officer) status who had been allocated special responsibility for the under-fives in their Authority.

The goal was that the survey as a whole should be sufficiently flexible for individual LEA's to respond either

fully, or minimally, with varying quantities of documentary evidence relating to record-keeping in their nurseries. The researcher was mindful of the heavy pressures that LEA officers and advisory staff are subject to, and wished them not to be overburdened with questionnaires and open-ended queries. No individual was written to more than five times without a response; the researcher would have preferred the maximum number of approaches with no response to be lower, so that recipients were not exposed to heavy pressures to participate when they had decided not to.

Out of 125 LEA's in Great Britain which were invited to participate in the survey 94% responded, 66% sent sample records, and 72% replied to the detailed questionnaire.

Design, reliablity and validity

The structured survey instrument for the Great Britain study was designed after consultative discussions with experts in the field of early education: psychologists, researchers, assessment manual designers, early education trainers (lecturers/tutors), teachers, nursery nurses, parents, and LEA advisers. It was piloted on volunteers with experience of early education and willing to test it for ease of completion and lack of ambiguity. It was then redrafted. The reliability of the final questionnaire was checked by interviewing seven of the respondents and cross-checking their written replies for accuracy, consistency and lack of ambiguity. This check showed no grounds for concern about

any serious problems of reliability. The face validity of the questionnaire and the initial letter of approach rest on their combined success in ascertaining a general picture of record-keeping in Great Britain's nurseries, as perceived by LEA advisers/officers with responsibility for in-service training and supporting practice. When the information from the survey was fed back to a small sample of advisers they agreed that the results echoed their own experience of wide scale under-fives' practice in relation to record-keeping.

Details of record-keeping practice in a "City and County"

Some of the most valuable responses to the Great Britain survey were from the advisers who undertook mini surveys of practice in their own Authorities. As well as sending official forms when these were available, they obtained the structures which different nursery teachers used for keeping track of children's progress. Sometimes completed records were obtained and sent despite the presumed difficulty of persuading teachers to part with "real records" of individual children.

Preliminary work together with the Great Britain survey suggested that it would be a logical step in extending knowledge of nursery practice to ask a sample of teachers about their regular habits of record-keeping.

Design, reliablity and validity

A detailed study of record-keeping in the nurseries in two

Authorities was conducted by means of a "City and County" structured survey instrument (see Appendix). Its intention was to provide the teachers' perspective. It was designed after a series of extended visits to nurseries and many discussions with pre-school advisers, tutors, and nursery practitioners.

During the visits, teachers were usually willing to show or give examples of the records they kept (if any) and to describe how their own system operated. The questionnaire was subjected to a process of piloting on volunteers and subsequent redrafting. It was intended to collect a range of honest responses, in a non-threatening way, and not to evoke guilt about any lack of record-keeping.

The instrument's reliability in terms of its level of accuracy was checked by administering it to all the teachers/headteachers in charge of nurseries in the experimental study (described below). Extended periods of time in these nurseries allowed the researcher to make systematic cross-validations of responses with observed practice. The finding was that the instrument usually elicited a very truthful picture of what the teachers believed to be happening in their nurseries. However, there was sometimes a tendency for teachers to exaggerate the amount of record-keeping that actually occurred.
The face validity of this instrument rests on its success in managing to describe the practice of nursery record-keeping,

and provide information on factors relating to its context, from the perspective of practitioners in the classroom. It thus complements the information obtained from the nursery advisers.

The research topic

The exploratory study as a whole is concerned not only with assessment of children and creation of records but with innovation in both in-service education and nursery practice itself. Baseline data on the early 1980's level of provision for in-service work and support for one aspect of the curriculum (record-keeping) was obtained in the Great Britain survey; a description of existing nursery practice was obtained by means of the "City and County" study. Both areas of fieldwork were deemed necessary in order to provide data of theoretical relevance, and contributing to existing knowledge about how teachers and nursery nurses go about their work and are capable, or otherwise, of making changes to their practice. An actual, though artificial, change was introduced as a catalyst to examining the hypothesis that nursery staff can adapt their work. This change was the introduction of a microcomputer into the classroom for an experimental period, and as described below.

The micro-based record-keeping study

It was decided that aspects of record-keeping in the nursery should be investigated and described in the studies which follow; a microcomputer was employed for a major part of the

fieldwork in order first, that it might act as a catalyst in obtaining information about the practice of keeping nursery records; second, to ascertain the feasiblity of micro-based record-keeping in the classroom itself; and, third, as an aid to investigation of a new form of in-service work.

The primary research question is: how might nursery record-keeping develop in the future and in what conditions and with what support? Ancilliary to this, there is the question of current practice and its context: what are the practical starting points - their history and future possibilities? The history and context of nursery record-keeping has been described above (in a theoretical framework demonstrating the evolution of practice); and the studies which follow will describe new evidence in relation to staff practice, perceptions, and LEA support.

It was considered that completion of the new studies decribed below could contribute to a pre-feasibility phase of work towards the development of an "expert system", to help nursery staff at some time in the future. (A project to develop any expert system would require extensive research and development resources, eg with costs in excess of £100,000's as was shown with the development of the interactive systems for doctors which both record and give information about drugs and diagnoses (Bartram and Bayliss, 1984)). Developing an expert system, in the 1980's, is clearly beyond the means of single-handed and time-limited

thesis work.) Further speculative reference will be made below (in Chapter 8) to the idea of an expert system in the context of nurseries.

When designing what was planned to be a three-year project, the key element was judged to be an intervention experiment which would allow trials of new ideas and the monitoring of reactions to innovations. It was planned that there should be comparisons between nurseries (in terms of dichotomized explanatory variables) in order to examine the theories which describe or explain practice. A purely qualitative method (with perhaps fewer classrooms and participants) was considered but rejected as not providing answers to the questions:

a) in practical terms, would a large number of nursery classrooms be able to engage in a curriculum-related innovation?

b) what process events might intervene?

c) what would be the views and ideas of a large number of nursery staff?

A survey alone could have elicited responses as to what staff thought they might do in an experiment with micros in their nursery, but their actual responses could only be monitored by employing a school based "experiment". This aspect of the study is described here as a quasi-experiment because a full-blown experiment in the sense of laboratory conditions would have been too artificial and constrained to

provide answers to the questions being addressed.

It was decided that the intervention should take place in natural settings (the schools where staff worked) and that resources should be aimed at making the sample as large as feasibly possible. To have gone into only two, three or even thirty-seven classrooms would have offered fewer typical responses, and thus a reduction in confidence in the data's contribution to descriptive or explanatory theory.

An additional reason for an "experimental" form of intervention being selected as the main approach to data collection was that there were in 1980-1984 (the four years of data collection) no micros in nurseries and the presence of a temporary micro would be necessary to answer the research questions. The alternative approach of asking staff to speculate about micros and record-keeping (when they had no experience of the former) was actually incorporated into the design in order to complement the work in school.

In-service work with teachers is becoming more school based (as the GRIST procedures are implemented: Surkes, 1987) and so the experiment was designed to investigate an exploratory model of school-based in-service work, i.e. one which is exploratory in the sense that it looks for alternative approaches and <u>not</u> that the methods employed are exploratory.

The piloting

Pre-pilot and pilot work, in advance of the main fieldwork, was necessary to the development of the experiment's design; and the knowledge gained contributed to the reliability and validity of the study as a whole. A summary description of the piloting is given here.

The first stage of the work was the development of a micro-based record-keeping system on an early micro (of the late 1970's); it had tape-cassettes for storage of wordprocessed and database information. During the feasibility study for the work which was to follow, one teacher travelled (with her hand-written notes on children) to use a micro situated several miles away. These were the first trials: conducted in parallel with investigations of nursery and infant school practice in relation to monitoring the progress of children in their first years at school.

A micro with disk drives was obtained for use in the definitive experimental study itself, and the software suite of computer programs was constructed. (The hardware and software employed is described below, in Chapter 5.) Further pre-pilot work with teachers in classrooms, and discussions with a range of experts/advisers, continued. There were further trials, away from the classroom at first, with teachers using the framework of the experimental micro-based record-keeping system.

The design decision for large numbers of classrooms participating was made on the basis of pre-pilot work and the literature survey which suggested that there was great variability in nursery staff ideas and practices.

The pilot nursery was the only one to be actively selected by the researcher; it was chosen because it was a "functional classroom" (defined below in Chapter 7) with all three members of staff working as a well-coordinated team, with very good provision for the children, an excellent teacher-in-charge, and a very calm atmosphere. Stress was expected in relation to the project and so the quality of the pilot classroom needed to be as high as possible. The LEA adviser concerned and the headteacher of the school were both supportive of the project; and pilot work was conducted in a straightforward way. It is likely that the previous period of pre-piloting contributed to the success in designing the procedures for the quasi-experiment. No modifications in the procedures were deemed necessary. They were designed to incorporate flexibility, so that the person conducting the work responded to the needs and interests of participants (and settings) in ways which were appropriate to them as individuals.

The procedures were that, for the experimental intervention, each classroom was to be supplied with a micro plus a defined set of resources for a set period of time, in the knowledge that staff would be asked to become actively

involved. The classroom in the pilot phase took one week - plus one term of follow up - to complete key procedures (defined below in Chapter 5) which were sufficient to elucidate fully the information relating to explanatory variables plus process events plus individual responses. In order to gather and check information (eg the completion of records on individual children), this contact time with a classroom needed to extend to more than one term, from the initial approach to the final data collection point. Contact with staff was in school time and out, on school premises and in the homes of participants, depending on circumstances (uniformity of treatment was the aim, and yet responses varied, eg after the invitation to all participants to take and use the micro in their own homes during the evenings of the intervention week).

After the full pilot study, the research design was set as a "week" of experimental intervention with one "term" of follow up. All participants could use the micro and give thought to record-keeping related issues during this period; they would discuss and record their written verdicts and ideas plus try out new record-keeping methods.

A different time-scale eg a much faster approach to working with staff was considered and rejected. Single days of workshops with larger numbers of school staff might have been possible with a "ready-made" system of micro-based record-keeping and an authoritarian intervention which was

going to attempt to impose this. Instead the project was asking classroom leaders and staff to discuss, devise, modify, and develop their own system of records to be used within a very flexible micro-based framework. A week, together with a substantial period of follow-up time, was needed for all thinking and reflection plus real trial of a new system. (The "week" and the "term" were not rigidly adhered to and could be slightly shorter or somewhat longer, depending on circumstances relating to the classroom.)

A subset of classrooms was given a reflection period of one half school term before having the micro and resources back again for a second week. Adding this component to the design allowed investigation of outcomes in relation to a single time or split-time experience of this particular form of experimental intervention.

To sum up, the approach to the intervention was relatively "quantitative" rather than being set in a more qualitative paradigm. This was in order to present results in relation to explanatory variables (rather than offering case study descriptions); such a methodological model requires as large a sample size as possible to be obtained, so despite the project being single-handed and limited in time and resources, classrooms continued to be invited to participate well into the fourth year of the registered research period. Ideally (in terms of being confident about significant results) the participating classrooms would have been all of the

nurseries in the United Kingdom; a less satisfactory alternative would have been a representative, stratified, and large sample; the actual compromise was to obtain an "opportunity sample" of willing nurseries within a reasonable travelling distance (actually between 2 and 200 miles from Walton Hall).

The general experience of staff with the micro is described in Chapter 5 and individual differences, eg in ease and difficulty of use, are referred to in Chapter 8.

To sum up here what happened in each classroom: staff discussed fully with the researcher their concerns and interests, as well as gaining expertise in tailoring a micro-based system to suit their needs, and taking advantage of the curriculum-related resources (see also, Chapter 13).

For the subset of classrooms given a reflection period of one half school term the second period with the micro was pilot tested and one week was again found to be sufficient to give staff scope to renew their familiarity with the machine, investigate resources, discuss concerns, and develop their record-keeping systems.

The statistical tests used to test whether or not the explanatory variables were associated with particular outcomes are used descriptively. Weighty generalisations may not be made from the findings, but they are worth

discussion none the less. Chi square tests were deemed the most appropriate; they are those tradionally employed to test associations between variables in non-parametric conditions. (See Chapter 5, for further statements about the use of statistics in this study as a whole.) The data fulfilled the normal assumptions for each chi square test: i.e. that there were no pre-existing associations between the variables. When checked there were no relationships between the explanatory (independent) variables or between the dependent variables and so no further steps needed to be taken to assess the interaction of variables, eg by the use of cluster analysis or other statistical techniques.

Summary of the design

It was decided that three LEA's (not ones which participated in the City and County survey) would take part in the experimental study to document the behaviour of staff in response to an innovation in their classroom itself. The intervention period was long and unusual compared with short one and a half hour sessions of in-service which are commonly offered by LEA's.

The intentions embodied in the design were:

1) to extend knowledge of record-keeping practice through a trial with new technology machines (micros for wordprocessing and database management), which were not yet being used in nurseries

2) to explore new forms of individual and small group nursery-based in-service training

3) to allow full documentation of the intervention, from the perspective of the researcher and the nursery staff who became involved.

Reliability and validity

Before the intervention, the person in charge of the nursery was interviewed and the reliability of the interview data was checked whilst the researcher was conducting fieldwork which comprised the experiment. When the interview data was checked against the reality of classroom practice itself it showed no grounds for concern about any serious problems of reliability.

Fieldnotes were written every day of the week that the micro was in school, in order to record the events which occurred and to keep track of staff and children's responses when they were free to be involved in the project. The reliability of this information was enhanced by the fieldnotes always being written on the same day as the fieldwork. Interpretations of events were written quite separately and space given to much reflection and reconsideration. Re-interpretations of the accounts were made to build up the most accurate and clear picture of the quasi-experiment data. There were cross-checks of perceived responses by having the participants complete "Appraisal" questionnaires of their views and verdicts. (The Appraisal

questionnaire was constructed in consultation with others, piloted on volunteers, and redrafted in the light of this.) Participants' orally expressed comments and reactions were very much like their written responses in their questionnaires. Therefore, there appeared no grounds for concern about problems of reliability in the data, in terms of consistent responses and views.

The same researcher and the same micro-based drawing/typing/database equipment were present in each of the nurseries and, at one level, there was presumed to be a similarity of reactions to their presence. In fact the experiment was designed with the intention that its unusual presence would foster a climate of creativity on the part of the classrooms as a whole, and by individual staff and children who would be curious about the micro technology and want to use it and develop ideas about it. Variations did occur - because of the individuality of participant responses which the researcher encouraged. However, it should be noted that the stimulus creating the reactions was the same experimental intervention: same procedures, same equipment, same researcher (i.e. the research repertoire was limited despite intentions to be highly "responsive" to individuals).

The face validity of the study rests on it answering the questions it set out at the design stage; and it did this. Its construct validity lies in the way it incorporated, as

variables, contructs about which evidence was obtained and on which research models and explanatory theory can be based. The design was for new evidence to be obtained in relation to previously established contructs as well as new constructs being defined and made operational. The study can therefore be described as having both face validity and construct validity.

Attitudes to new technology

A post-hoc control group was obtained in order to ascertain whether or not the quasi-experimental participants were a particularly unusual group of people or whether anyone who works in a nursery would be willing to use the new technology.

Design, reliability and validity

The design of the "New Tech" survey instrument came about after many consultations with experts and extensive pre-pilot work for the quasi-experiment. It was piloted with volunteers whose responses helped reduce the length and improve the clarity of the final version.

Reliability of survey responses was checked by discussion with twelve of the main experiment participants, after they had completed their "New Tech" questionnaires. They were asked to reiterate and expand upon their responses; what they said indicated a high level of the instrument's reliability - in that they all stood by what they said on

their New Tech questionnaires. Therefore, the questionnnaire was a good means of accurate data collecting, and a more efficient one (in time terms) than lengthy interviews with the hundreds of people surveyed.

The survey instrument has face validity in doing what it set out to do (investigating a "control" group), as well as providing data on the two different groups of staff in nurseries: the teachers and the nursery nurses. The views of nursery staff in relation to in-service work and a future possibility for curriculum innovation were ascertained. There was construct validity through the use of established and new constructs, and the obtaining of further evidence in relation to them.

There now follow the seven chapters detailing the methods and results and discussions of the fieldwork as a whole, plus the final discussion chapter, and a postscript.

3. A SURVEY OF UNDER FIVES RECORD-KEEPING PRACTICE IN GREAT BRITAIN

Introduction

The recent publication of manuals for assessment in nursery education (Tyler, 1980a; and Bate and Smith, 1978, for example) illustrate that record-keeping in nursery education has evolved considerably since the last national survey of record-keeping practice (Walker, 1955) which showed few nursery records being kept in the early 1950's (as Chapter 1 documents). A survey of Local Education Authority nursery/infant advisers was conducted to answer the question as to the extent of the change and to discover what kinds of records are being kept. A second research question relates to the differences between the purposes of records for children in nursery provision and those for four year olds in infant schools. The third main question will concern the content of such nursery records as are provided by LEA's or are developed by schools themselves (a matter which will be dealt with further in Chapter 7). The purpose of the data analysis in the present chapter is to describe LEA policy towards under fives record-keeping practice in Great Britain as a whole.

Method and sample

A comprehensive survey was conducted between 1981 and 1983 of the 125 LEA's of Great Britain. This consisted, in the first instance, of an open-ended query about nursery and

infant school record-keeping and a request for samples of current and previous record-keeping systems. This was followed by a detailed questionnaire for the adviser or officer with responsibility for the education of under fives, and a follow-up letter where necessary. (The "Great Britain" survey instrument appears in the Appendix.) Luckily, response rates were very high as is shown in Table 3.1.

Note on percentages

Throughout this thesis, tables of percentage have been included where appropriate to display as clearly as possible the results. Rounding to whole numbers means the total percentages do not always equal 100. The sample sizes do not warrant greater precision than whole number percentages and simplified proportions.

Results

One of the main findings concerns the move towards an "official" or "standard" system for nursery record-keeping; 44% of LEA's have standard records and the majority of nurseries use such forms when they are available (Table 3.2). This is not the full picture because many schools have developed their own systems of record-keeping, often using them in conjunction with the LEA standard records. Indeed some LEA's make this an explicit recommendation.

Record-keeping has evolved quickly with most systems of

Table 3.1: Response rates in the LEA survey and status of respondents

Number of LEA's in England, Wales, Isle of Man, Isles of Scilly, Guernsey, Jersey, Scotland, and Northern Ireland (Great Britain) is 125

Reply rates
(N = 125 LEA's invited to participate)

	- percentages -
LEA's responding	94
LEA's sending sample records	66
LEA's responding to detailed questionnaire	72

People completing "Great Britain" questionnaire
(N = 88 respondents)

	- percentages -
Nursery advisers	43
General or primary advisers	32
Senior advisers	10
Others (including chief education officers and assistants)	15

Note: throughout the tables presented in this thesis, rounding to whole numbers means the total percentages do not always equal 100. (The sample sizes do not warrant greater precision than whole number percentages and simplified proportions.)

Table 3.2: Standard and schools own record-keeping systems

LEA's with standard nursery record-keeping (N = 112)

44%

Nurseries using standard system when this is available

(N = 42 LEA's)

All	Most	About half	Less than this
62	19	12	7

Nurseries that have developed schools own systems

(N = 79 LEA's)

All	Most	About half	Less than this
28	51	15	6

Infant schools that have developed schools own systems

(N = 81 LEA's)

All	Most	About half	Less than this
30	59	6	5

standard records having been developed in the five years prior to this survey (Table 3.3). Typically they were designed by advisers and teachers working over the course of many months. Specialists such as educational psychologists, speech therapists, NNEB tutors, or College and University teachers were often asked for suggestions, but nursery assistants had little part to play.

The actual form of schools own and standard record-keeping varies considerably from Authority to Authority, but most contain either checklists or spaces for narrative comments under headed categories and they are considerably shorter in length than either the NFER manual (Bate and Smith. op. cit.) or Keele guide (Tyler, op. cit.). There are just two Authorities with standard record-keeping booklets which are longer and more elaborate than the Keele guide. One of these is based heavily upon it, but extends the age range and curriculum-related content to cover 5-6 year olds as well as the 3-5's. The second is very much grounded in the curriculum practice of its nurseries and provides extensive prompt lists in relation to areas of children's development and has proved popular with nurseries and infant schools and it is being used now, in 1986, with both the 3-5's and the 5-6's as a check of individual acquisition of concepts and skills.

The majority of LEA advisers are keen on record-keeping for the under fives, saying that it is "very important" or

Table 3.3: History, design, and evaluation of standard record-keeping

Year when current standard system first used

(N = 36 LEA's)

1960-1972	1973-1977	1978-1982
8%	31%	61%

Was there an earlier version of the standard system

(N = 38 LEA's)

Yes	No
42%	59%

Participants in the design of the standard system

	- percentages -
Advisers	100
Infant teachers	68
Nursery teachers	92
Nursery assistants	5
Others	47

LEA's where there are evaluation studies with some relevance to under fives record-keeping practice

(N = 90 LEA's)

60%

"quite important" in both nursery and infant school settings. Written guidelines about record-keeping are offered most frequently to infant teachers, next most often to nursery teachers, and least of all to nursery assistants (Table 3.4). Similarly, in-service training concerning records is offered in three-quarters of the LEA's to infant and nursery teachers but in only half to nursery assistants. LEA replies to the Great Britain questionnaire indicate there is more in-service training about record-keeping than publication of official LEA guidelines. Recent contact with advisers suggest that a good deal of interest in, and discussion of, nursery records has come about, and, in the light of this, the purposes of such records can be examined.

In both infant schools and nurseries, records are commonly used to aid planning for individual children. Other purposes of record-keeping vary slightly from nursery to infant school settings, with transfer being most prominent in the latter (Table 3.5). Out of 79 respondents, 44% say nursery records are "always" given to the next school and 41% say this "often" happens, with only 15% claiming this to be an "occasional or non-existent" occurrence. The survey found there to be liaison between nurseries and infant schools in the majority of cases, with transfer records often playing a minor part. To a much lesser degree, records are used in communicating with other professionals. Parents are rarely shown records relating to their under fives (Table 3.6) and parents are also unlikely to

Table 3.4: LEA record-keeping guidelines and in-service training provision (percentages)

	Guidelines available	Not available	N
For infant teachers	56	44	85
For nursery teachers	44	56	82
For nursery assistants	29	71	75

Frequency of in-service training in record-keeping

	Frequent	Occasional	Rare	Never	N
For infant teachers	16	61	18	6	84
For nursery teachers	17	57	26	6	83
For nursery assistants	15	37	23	25	75

Table 3.5: Purposes of record-keeping in nurseries and infant schools (ranked from 1 for the most important to 5 for the least important)

In nurseries
(N = 70 LEA's)

Rank	Transfer	Parent communi-cation	Profess-ional communi-cation	Nursery team planning	Planning individual programmes
1	20	2	6	20	22
2	10	7	7	17	15
3	15	11	12	9	7
4	6	16	15	5	5
5	3	15	11	3	5
Final ranking	3	5	4	1	2

In infant schools
(N = 74 LEA's)

1	35	2	8	2	17
2	13	11	13	3	13
3	4	15	11	5	14
4	3	19	14	0	6
5	0	2	4	5	0
Final ranking	1	4	3	5	2

Table 3.6: Parents and under fives records (percentages)

Frequency of staff showing records to parents

	Always	Often	Occasio-nally	Rarely	N
In nurseries	3	16	66	15	74
In infant schools	5	10	71	14	78

Frequency of parents completing pre-entry forms about their children

	Always	Often	Occasio-nally	Rarely	N
In nurseries	17	10	21	52	82
In infant schools	9	15	27	49	79

Frequency of parents giving follow-up details about their children

	Always	Often	Occasio-nally	Rarely	N
In nurseries	5	21	31	44	82
In infant schools	4	18	33	45	78

contribute directly to the record-keeping process.

Discussion

It is probably more than coincidence that a move towards accountability and a rise in the use of nursery records have both appeared in the last ten years. Often the LEA's with the most interest in record-keeping are the same ones (N=54) who mention some form of current evaluation of the work in their nurseries.

There appear to be perennial difficulties when designing all-encompassing evaluation schemes or record-keeping systems. One of the problems with attempting to provide standard records is that if LEA's, schools, and teachers have a host of diverging purposes in mind, then the design and completion of records is likely to suffer (Morris, 1954). Such problems may be increased as individual nurseries vary so greatly, one with another. (Consider the cases of LEA's with more than 30 nurseries, each with their own particular intakes of children as well as staff specialities and interests.) Perhaps the predominance of schools own systems means it will never be possible to suit everyone with a standard system, unless it is only meant to be a partial system in the first place. A universally applicable system of standard records appears to be an impossibility.

Two purposes of record-keeping in nurseries about which

there is strong agreement, in relation to their importance, are team planning and planning for individual children. In contrast, advisers say that in infant schools the major purpose of records is for transfer. One practical constraint for the infant reception class teacher is the worsened adult:child ratios, compared with nurseries, and it may be that the "working records" of nurseries are too time-consuming to be maintained in infant classrooms. This need not necessarily be the case and so it is suggested here that infant classes might profitably experiment with using pupil assessment profiles, supplemented by systematic observations, for individual planning.

Nearly all LEA's report liaison between nurseries and the infant schools to which they send children, but only half say that written records are "always" sent from the nursery to the infant school. Several advisers explain that, where there is unusually good liaison, written records are not necessary. However, need good transfer records and good liaison be considered as mutually exclusive? Clearly the emphasis on the primary function of records varies from Authority to Authority. In some LEA's the nursery record is part of a system to monitor the progress of a child from age 3-18, and, in others, records are used for screening children with a view to offering them compensatory education, although such a function is now controversial (Booth, 1983).

Lastly, there appears to be an unfortunate consensus that records are rarely used as an aid to discussion with parents. Just two LEA's have declared that they will no longer withhold education records from parents (TES, 1983). Although many Authorities agree in theory that parents should read or be told about their child's records, the present survey reveals that parents do not usually see such documents. One adventurous headteacher of a nursery school wrote the following post-script to a questionnaire, "P.S. although until now records have not been used to communicate with parents we feel they could be used in this way to greater benefit the child". It seems likely that the experiments that are being conducted in many LEA's and individual schools will lead to a new role for under fives records as a focus for two-way communication between parent and teacher (Chapter 4 examines record-keeping practice in two LEA's to see if this has yet happened). For two-way communication to occur, the actual form of the record will have to be re-examined. Perhaps a two-tier system will emerge, one for "working records" and one for communication and transfer. There would be dangers here, however, of a "parents' versions" and a "teachers' version" emerging and this would be unacceptable to the LEA's and others who have already adopted an open records policy or are strongly in favour of one. (Nursery staff opinions on this matter are given in Chapter 8.)

If written information about a child is to be useful, then

its meaning needs to be explicit. "Ready-made kits" such as the Keele and NFER manuals assist by offering systematic means of reliably gathering information about a child's response to behavioural tasks. Further, teachers' and nursery assistants' observational studies of children can complement such information (Sylva, Painter, and Roy, op. cit.). The selection of salient details to write under headings and the interpretation and completion of checklists are complex tasks. More guidance in monitoring children's progress is likely to be needed, and a change in policy required to offer such in-service training equally to all the staff concerned with under fives. In the past nursery assistants have been excluded from record-keeping tasks and so it was not relevant for them to attend courses on the subject. But as recommendations, at LEA level, have come forward in relation to their involvement it seems appropriate that they should be offered training. (Chapters 4 and 9 provide information about nursery assistant involvement in record-keeping, with further discussion of the issue in Chapter 10.)

In order to provide an account of the task of record-keeping from the point of view of the nursery teachers rather than their advisers, two detailed studies of how LEA standard forms are actually used in the nurseries of two different Authorities follows in Chapter 4.

4. COMPARATIVE CASE STUDIES OF RECORD-KEEPING PRACTICE IN TWO AUTHORITIES WITH STANDARD SYSTEMS OF RECORD-KEEPING

Introduction

Two very different LEA's were chosen for this more detailed study of nursery record-keeping. The main criterion for selecting the LEA's was the availability of an official system of record-keeping. A secondary criterion was to contrast metropolitan nurseries with those in non-metropolitan counties. Standard LEA records usually take one of two forms, either a checklist or a series of headed categories under which comments are made by nursery staff. Therefore, in order to make comparisons, one of the case study LEA's was selected because of its standard checklist format, and the other LEA selected for its provision of a standard form with structured headings for nursery record-keeping. In both LEA's, schools own records may be used in conjunction with standard forms. The intention of this study was to document the goals, procedures, and opinions of nursery staff who actually use (or choose not to use) two different kinds of standard records.

Method and sample

Information was collected by means of a postal survey (the "City and County" questionnaire used in this survey appears in the Appendix). Tick boxes and open-ended prompts allowed teachers and headteachers to describe their practices and

express their views. In the city LEA all nursery school headteachers were sent a questionnaire as was a smaller random sample of nursery class teachers. All the nursery class teachers and the lone nursery school head from the county were sent a questionnaire (Table 4.1). There was an overall response rate of 78%.

Describing the data from each Authority as belonging to either "city" or "county" does not suggest they are typical of either counties or metropolitan Authorities. For this reason, some background information on the nurseries in the sample is provided before turning to the question of record-keeping. "City" belongs to a metropolitan council where there is generous provision of well-established inner city nursery schools and classes, with some dating back to the early years of the century. Nursery record-keeping has been encouraged since 1977 with a standard form designed by a working party that included members of the LEA as well as infant and nursery staff. "County" belongs to a non-metropolitan English LEA which provided many new nurseries during the 1970's. Their standard nursery forms were officially introduced for nursery use in 1982, but those who were keen or involved at the design stage could try them out before this. A few of them did so. The forms were designed by nursery and infant school staff and members of the LEA, who also invited the ideas of others outside the county.

Table 4.1: City and county samples

Number of nurseries invited to participate (number in brackets if the total for each Authority).

	Nursery schools	Nursery classes	Totals
City	27 (27)	10 (74)	37
County	1 (1)	31 (31)	32

Percentages of nurseries responding to the "City and County" questionnaire

	Nursery schools	Nursery classes	Totals
City	85	50	76
County	100	81	81

Note: for Tables 4.2 to 4.4, the actual numbers of respondents are 28 for the city and 26 for the county.

Whilst three-quarters of the city nurseries have children starting between the ages of two and a half and three and a half, no county children enter before their third birthday. In the city, four-fifths of nursery children transfer to the infant school before they are five years old, whilst in the county nearly half the children stay in the nursery until after their fifth birthdays. The city nurseries have many full-time children (usually from 20 to 100) and some part-time places (usually up to 40). On the other hand, the county nurseries have mainly part-time places (usually between 40 and 100) and very few full-time places (usually 10 or under). Thus the county nurseries have fewer children; they stay for a shorter time and are somewhat older.

The staff:child ratios are similar in both LEA's, ranging from 1:10 to 1:15. There is continuity of staffing in both LEA's, with each nursery headteacher, teacher, or nursery assistant having worked for an average of six years in the nursery. Half the county nurseries send children to only one infant school whilst three-quarters of the city nurseries each send children to five or more different infant schools.

Two additional points concern differences in provision: more than four-fifths of county nurseries claim parental involvement while only half the city nurseries do so. Further, the city nurseries are more likely to have a

structured programmed than the county ones. The many differences between the two LEA's may well contribute to differences described below in the format and use of records. This point will be discussed at the end of the chapter.

Results

a) The format of records

The two most common models for nursery record-keeping are "headings" type and "checklist". The headings format offers a list of developmental areas and requires the record-keeper to contribute sentences or short notes. Both formats usually include sections on the social and emotional development of a child, his/her physical development and cognitive skills. If the sections in a headings format are very broad, it allows the teacher opportunity to highlight widely differing aspects of each child and to structure the narrative accordingly. Disadvantages of broad headings are the lack of comparability of content, the room for interpretation in different ways, and that they are hard for inexperienced staff to use. A finely defined set of headings is more like a checklist because it leaves little scope for the teacher's own organization of information about a child. What is common to all headings formats is that the staff must provide written details from their own observations and a yes/no answer will not do. Headings used in the county record's language section include, "receiving language; production of language; use of language; other

comments". In the cognitive section are the headings, "discrimination; problem-solving; other comments". Most proponents of the headings format believe it helps them organize information without being over prescriptive.

Checklists alleviate the need for narrative compositions by their yes/no format. They may contain as few as two items or as many as 200. Some checklists blur the simple yes/no dichotomy by offering arrays of columns for answers ranging from "beginning to do this" to "has lots of experience of this activity", or ratings of performance at different tasks, with space for annotations in either instance. The visual design of a checklist allows it to be analysed quickly by an experienced person and many respondents commented on this.

The city's standard form is a checklist. Some of the checklist items used in the city record are (all drawn from the "social and emotional development" section), "cooperative, confident, independent, aggressive, attention seeking, submissive, withdrawn, easily upset". These items are to be coded twice, "seldom/sometimes/usually with other children" and "seldom/sometimes/usually with adults". In the "general development" section of the checklist are the items, "health and physique; body control and coordination; fine manipulative control; speech articulation; ability to concentrate", all of which are designed to be rated "poor/satisfactory/good".

County nurseries nearly all use the structured heading records although about one-third have developed checklists to complement them. One teacher writes, "the official forms are not designed in such a way that they can be used easily for planning... many of us (nursery teachers) felt the forms were badly designed and of limited usefulness in their present form. Had they appeared as a detailed checklist they would have been much more useful but, as they stand, sentences have to be constructed and selected to put under generalized headings... and although the accompanying guide is good, there is not room on the card itself for the sort of detail which would be of use, for example, in programme planning". This teacher developed her own system of 42 checklist items. A slightly lower proportion of city nurseries use their checklist format and three-quarters of them supplement with a different style.

Amongst the supplementary records are assessment guides such as those by Bate and Smith (1978) and Tyler (1980a). They come in the form of "ready-made kits" which enable staff to test with precision each child's skills by following clear instructions and using specified materials under arranged conditions. Table 4.2 shows that slightly more city nurseries than county use "ready-made kits" in addition to the LEA standard form.

Whilst some nurseries add to the official record with schools own items or a "ready-made kit", others, especially

Table 4.2: Number of years of use of different record-keeping systems (percentages)

	LEA standard	Published assessment guide ("ready-made kit")	Schools own
City			
Up to 1 year	14	4	11
1+ to 2+ years	18	7	14
3 to 5 years	40	11	39
6 to 8 years	11	0	11
9+ years	0	0	11
No reply or non-applicable	18	79	21
County			
Up to 1 year	85	8	0
1+ to 2+ years	12	4	12
3 to 5 years	0	0	0
6 to 8 years	0	4	4
9+ years	0	0	4
No reply or non-applicable	4	85	81

in the city, reduce the standard form. Many of the reductions to the checklist forms of the city appear to be related to the space for sensitive information about the child's home background and for value judgements about the child's character, the kind of information carefully guarded by teachers. A few city nurseries abandoned the standard form altogether to experiment with idiosyncratic methods but they admit that often their experiments produced records that were either insufficient or too elaborate. County nursery staff, apparently less innovative, may not have had time to tailor their records to particular needs. Another possible reason for the higher incidence of schools own innovation in the city is the greater age range of children. The city's detailed checklist may be too narrow to encompass easily the age range 2-5.

b) Keepers and readers of records

Headteachers and nursery teachers are the ones most likely to write on records (Table 4.3). In this they are unlike nursery assistants who, especially in the county, rarely make direct contributions to the written forms. Nursery assistants play as limited a part in collating the final records as they do in producing working records, with one-third assisting in the city and 15% in the county. However, they are usually allowed to read the records or, at least, participate in verbal discussion of their content (in three-quarters of all nurseries). This role differentiation in record-keeping was found in the national survey reported

Table 4.3: Keepers and readers of nursery records (percentages)

The recorders and contributors

	Nursery head or teacher	Nursery assistant	Other profess-ional	Parents
City	100	71	11	0
County	100	15	4	4

Agencies that give information to the nursery

	Speech therapist	Social worker	Health visitor	Hospital	Other
City	86	50	61	64	40
County	85	65	58	35	46

The readers of nursery records

	Nursery head or teacher	Nursery assistant	Parents	Infant head teacher	Recept-ion teacher	Other
City	100	75	39	64	64	21
County	100	81	31	77	89	19

in Chapter 3 and is described in relation to aspects of nursery work by Clift, Cleave, and Griffin, (1980).

Whilst professional agencies have access to nursery records in only a fifth of all nurseries, the majority of nurseries receive written records, phone calls, or are told face-to-face about children by speech therapists, social workers, health visitors, and hospitals. Now that nursery-based medical check-ups are rare, outside professionals are consulted when nursery records pinpoint problems. One teacher says he uses records "to decide whether to call in outside help i.e. speech therapist, hearing test, eye test, Ed. Psych. etc.". There is generally more consultation with other professionals in the city than in the county.

Only a third of all nurseries allow parents to read records or offer them a verbal digest. Although the county nurseries report more parental involvement they are no more keen to show records to parents than their city counterparts. Clearly, involving parents in the work of the nursery does not automatically lead to sharing written information with them. There are just a few teachers who are explicit about records being good for public relations, "to help parents understand the value of nursery education". Sadly most respondents claim that parents are unconcerned about records (and a few go as far as to say some parents are unconcerned about their children, full stop).

c) Procedure

The time for starting a child's record varies between county and city, with county nurseries encouraged to begin before the child's entry (with a parent questionnaire, often completed on a home visit). The city nurseries tend to delay their written comments until the first few weeks after the child's entry. Additions are usually made to county records at termly intervals whilst additions to city records take place at half-term intervals. Again, it may be that the checklist format is simpler to fill in and therefore can be completed more often.

In both city and county the final nursery working record has to serve as a transfer record. Most nurseries in the county send only the standard record to the infant school but city nurseries are more likely to send schools own records, results from "ready-made kits", spoken comments, or samples of the child's work as well as the standard records. Again, the constrained city checklist format is supplemented by extra material.

d) The purpose of records

The nurseries put into rank order a list of possible reasons for record-keeping (Table 4.4). Many nurseries see records as "working documents" to aid planning for individual children and to help nursery teamwork. One nursery teacher, for example, describes the lively interest of her staff in records, "real involvement analysing learning tasks".

Table 4.4: Purposes of record-keeping (ranked from 1 for the most important to 5 for the least important purpose)

	Transfer	Parent communi-cation	Profess-ional communi-cation	Nursery team planning	Planning individ-ual programmes
City	3	5	4	2	1
County	1	5	4	2	3

Records are "for continual assessments ... for staff team use, including parents and students. Should a child be found, by means of checklists, to be finding difficulty in some area i.e. manipulative, listening, or discriminatory skill, intensive programmes can be specifically devised". Another headteacher highlights a different function, "if a child does not progress one would question one's own teaching methods and commitment ..." - in other words, records are used to evaluate the nursery as well as assess the child. (These examples were selected to illustrate everyday use of working records.)

Instead of "working documents" some nursery staff claim the main purpose of records is for transfer. This is especially the case in the county where the nurseries usually feed only one or two infant schools. An intriguing difference between city and county is that nearly all nurseries in the county claim that the reception class teacher of the infant school actually reads the children's nursery records but only one-fifth of the city nurseries claim this with confidence. It appears that for many city nurseries the problems of communication with several, often distant, schools are difficult to surmount. One city headteacher says, "we are concerned that some infant schools disregard nursery records and consider them unimportant!"

Generally staff in both LEA's assign low rankings to communication with other professionals and aiding contact

with parents.

e) Reactions to records

Only one-fifth of the nurseries replied to the open-ended question concerning parental reactions to records. (Open-ended prompts have been found in other studies to receive fewer reponses; see Gipps, 1980, for example. This may be explained by the fact that it usually takes longer to think about and write a response than simply to select and tick a box.) Amongst the few replies about parents, some nurseries mention appreciation but others say there are mixed feelings and lack of interest. It is clear from this study that most nurseries do not consider parents to be a necessary or appreciative audience for their records.

In the county, 16% of nurseries say their assistants are negative towards record-keeping but none of the city nurseries mention this. The disparity might be linked to the greater contribution towards record-keeping by city nursery assistants.

A sizeable proportion of nurseries are uncertain about the response of infant schools to nursery records. Whilst there is optimism on the part of some who state that infant staff view records as valuable, many conjecture that nursery records are ignored by infant schools and the potential of records is wasted.

f) Assessing and observing

The questionnaire asked for judgements about both the "ideal" amount of time as well as the "realistic" time to be devoted to assessing and observing children. ("Assessing" is defined as making measurements of a child's performance and behaviour. On the other hand, "observing" is systematically watching a child's participation in the normal nursery programme.) The majority of respondents in the county and city nurseries would like more time to stand back and observe children. Clift et al. (1980) found in their study of 40 nurseries that staff stood back quietly to observe children for less than 2% of their time. The results from the present survey show that the city nurseries would like to assess more than they do, whereas the county nurseries feel they do enough. However, despite expressed enthusiasm for assessment, few teachers question its objectivity.

Discussion

It is now possible to compare results in this study with those from Chapter 3, whereby record-keeping practice in Great Britain as a whole was described. Two questions can be addressed. Is record-keeping in these two LEA's similar to that of the rest of the nation? Can record-keeping systems be improved or put to better use?

The answer to the first question is a qualified yes. Although teachers in the present study are a slight minority

in having available a standard record (which makes them different from nursery staff in 56% of British LEA's), official records are increasing and it is reasonably safe to conclude that in the next five years most nursery staff will have standard records available. What emerges here is that many nurseries supplement the standard record with some form of schools own. This suggests strongly that there may never be universally acceptable and used records, no matter how wide the consultation beforehand.

Even more interesting are the reasons that nursery staff give for devising their own records. Teachers are found in both LEA's busily designing schools own supplements. Clearly they do this not because either the checklist or headings format are upopular, but because nursery staff are inventive, have specialised interests, and are mindful of local needs.

Although information from two Authorities confirms the national survey, with respect to the popularity of supplementary records, it does not provide an answer to the question of what prompts them - except perhaps the urge to put a personal stamp on a mass-produced product.

Which format is superior, checklist or headings? While some respondents condemn checklists as being "too easy to tick thoughtlessly", others praise them for showing a "graphic picture" of a child's development. The advantage of

checklists for individual planning is supported by the finding that city nurseries give a higher ranking to this purpose. Then, too, the city nursery assistants are more likely to contribute to records, another plus for checklists.

A standard record-keeping system, no matter how benign its design and implementation, makes implicit prescriptions about the structure and content of the nursery curriculum. It may be more than a coincidence that checklists are used in city nurseries, which, in this sample, report more structure in their daily programme. City nurseries clarify their goals for each child and use checklists to aid achievement of this ambitious task, whereas the county nurseries tend to have a less structured approach to curriculum and do not use pre-designed checklists to document a child's progress. A very quick and visual monitoring of progress is immediately available from a checklist which has a further advantage of being convenient and quick to alter, even though it may not be filled in more frequently than once or twice a term.

Headings records are found in the less structured county nurseries. Perhaps less structured nurseries dismiss checklists of pre-set items as being not in keeping with their approach. A few respondents from the city criticize checklists for not being sufficiently rich in detail to cope with every child in the nursery, and, if they were, they

would be impossibly long and rarely used. A tentative recommendation for the future might be for standard systems of record-keeping which incorporate the best of both formats by combining checklists and headings. Each domain of development (e.g. physical) might begin with a brief checklist, easy to scan and update, then continue with a well-chosen list of headings to cater for a wide range of children's capacities and nursery staff specialisms.

Although records in the city are viewed primarily as a means of planning for individual children, county records are valued as much for their role in transfer. Despite the fact that most nurseries in the county and many in the city pass on records to infant schools, there is little evidence that transfer records are used in the way they are intended; respondents are either uncertain or non-committal as to how their records are actually used in the infant school, especially in the city where single nurseries feed so many infant schools. Thus the contribution of records to transfer is not fully exploited, even in the county where it is given a high ranking. Where city and county staff agree, in confirmation of the national survey, is that under fives records are useful for nursery team planning, even in the small county classes, but they are much less used for communication with professionals outside education.

Both the city and county teachers give lowest rankings to "communication with parents" as a purpose of records.

Two-thirds of nurseries never (or very rarely) show records to parents, and, even in those nurseries which do, it is the minority of parents who see them. Again this confirms the national survey in which 81% of LEA's reported showing records to parents "rarely" or "occasionally". Therefore, it can be concluded that records are more for "working" purposes than for "communication", missing out on a valuable means of working in partnership with parents.

It is clear from this study that nursery assistants generally could become more frequent keepers of records. Nursery assistants in the city may be more involved in record-keeping because the city standard record had been established for several years and has had time to filter through the entire staff: or it may be because the city's checklist format is preferred by nursery assistants. There are recommendations that assistants as well as nursery teachers should keep track of children's progress (James, 1981). That some already do so is illustrated by the following example. Because of nursery teacher absence, one of the survey questionnaires was completed by the nursery assistant; her cogent replies demonstrate an excellent understanding of the complexities of record-keeping and the purposes to which it can be put. This is despite the fact that the national survey showed that no more than 5% of the Authorities, with standard records, invited nursery assistants to participate in their design.

A national survey and a more detailed study of two Authorities have both shown that standard records are bourgeoning and staff actually use and enlarge on them. Before applauding this practice, however, it may be prudent to consider the means used when collecting the information so carefully recorded. The Keele guide (Tyler, 1980a) provides a series of graded tasks whereas most LEA standard record forms are far less precise. Staff have to look out during the busy nursery day for what their many charges can and cannot do. There is a difference between precisely graded tasks such as those which form part of the Keele record and teachers' impressions of "what happened today". Such impressions can be inaccurate and even biased. For example, Gipps (op.cit.) found that nursery assistants in day nurseries overestimate the capabilities of "deprived" children. Other research shows that nursery staff give lower all-round ratings to children they judge to be less likeable or less attractive (Tyler, 1980b). Tyler points again to the difficulties that beset pre-school staff when trying to use rating scales or questionnaires which lack criterion-referenced items. Does the child with a low rating on one dimension tend to get a low rating on another dimension? Such biases have received little publicity but they are a warning to those who praise the apparent objectivity of LEA standard records.

One means of objective assessment already described is to administer skills tests to each child. This can go against

the grain of nursery staff who prefer to assess a child's talents during the more natural nursery routine. Clift (1982) reviews the USA assessment literature to find "ground-rules" for writing unstructured anecdotes that avoid impressionistic sketches. He also suggests observation inventories for rating specific behaviour which has been noticed during the nursery day.

Some nurseries, especially those in the county, are beginning to use objective "target child" observations. The means of time-sampling, recording, analysing, and coding such observations by nursery staff are described by Sylva et al. (op. cit.). Observing can be integrated with the rest of the nursery day, and provides samples of "typical" behaviour, thus avoiding the necessity of relying on general impressions and the most eye-catching of incidents. One headteacher summarises, "we find that observation is very necessary to assess what the children do and not what we think they can do".

Current practice has been described and tentative suggestions about record-keeping proposed. Unfortunately the suggestions would increase the workload of already over-stretched staff. Neither the city nor the county use micros for record-keeping; nor do any of the other LEA nurseries, but micros could be adopted to streamline the mechanical side of this work. The "experimental" study which follows in Chapter 5 investigates this possibility.

5. AN EXPERIMENTAL MICRO-BASED RECORD-KEEPING INTERVENTION STUDY: ANALYSIS BY PREDICTOR VARIABLES

Introduction

An intervention experiment was set up to find out if nursery staff could learn to use a micro for the purposes of micro-based record-keeping and whether such a classroom intervention would have short, middle, and long term effects on the amount and kind of record-keeping. The questions that will be dealt with after an initial description of the experiment concern the background variables which were closely associated with what emerged as successful outcomes (defined below, pp 133-135) in terms of the hypotheses, namely: which of the "predictor" variables are important i.e. existing record-keeping practice as well as LEA policy on record-keeping; nursery curriculum; demographic and context factors relating to the functional classrooms; and finally management and organization.

Method

Nursery records had not been kept on a micro before this intervention so the design was invented to tackle something that is a possibility for the future but which could not be studied by simply observing what the nursery staff already do. As large a sample as possible was obtained in order to permit some generalizations to be made from the results. The selection and final size of the sample was constrained only by what human and material resources as well as time

would allow. Thirty-eight functional classrooms participated during the continuous and intensive fieldwork period of three years from September, 1981, until July, 1984.

The study is referred to as an experiment although it is not in the laboratory tradition of matched samples and random assignment to treatment. Rather it is an innovative type of design to explore issues relating to nursery record-keeping and the possible use of a micro; it is an exploratory study and aims to analyse variables and processes at play in natural settings rather than a laboratory.

Sample

a) Functional classrooms

For the purposes of this study a "functional classroom" will be defined as follows: the children spend part of their time in a set area with regular staff member(s) who are responsible for planning and carrying out their programme. The children have story-time and other activities with functional classroom staff. When there is only one functional classroom then all the children spend all their time in it, but when there are more than this the children spend some of their time intermingling with children from other classes. This strong definition of functional classroom excludes divisions of children for story-time only. Also the creaming off of "leavers" for special activities does not on its own necessarily constitute a

separate functional classroom. Division of children so that a member of staff can keep track of the progress of a group, and individuals in it is not a sufficient condition for a functional classroom either. Numbers of children are not relevant to the definition and nor is the professional status of the functional classroom leader, nor the quantity of staff members. Thirty of the classrooms had from 2-4 people working in them whilst eight had one person.

There were 22 separate nurseries in the study and 15 of these had only one functional classroom whilst the others had between 2 and 4. The unit of treatment and analysis was chosen to be functional classroom because it was here that any in-service work would be focussed. The leader of a functional classroom would train other members serving the classroom (or the solitary classroom leader would be empowered alone) to make changes to curricular practice. The unit of "whole nursery" was often too large to measure changes and responses to the microcomputer intervention. On the other hand the unit of "individual participant" ignored the classroom group which was potentially the unit in which any changes or responses would occur.

b) Nursery schools and classes

Nursery schools are defined as having nursery headteachers in charge and being self-governing entities whilst nursery classes are attached to infant schools with the headteachers of these taking overall responsibility for the nursery class

even when the nursery teacher in charge may hold a scale 2 or 3 position. Twenty-four of the functional classrooms which participated in the study were in nursery schools and 14 were in infant schools. (There were 9 nursery schools in the sample and 13 infant school nursery classes.)

c) Participants

There were 104 participants in the study; these comprised nursery teachers (N=28), nursery school headteachers (N=9), and nursery assistants (N=52) and "others" (N=15). The "others" were, in order of frequency, NNEB students in the classroom for a sufficiently long period for them to participate fully, welfare assistants with responsibility for children with special needs in the classroom, secretarial assistants with time allocated to helping children in the nursery and, finally, an infant headteacher who chose to allocate some time to the project. (There were other individuals, mainly students, who also participated but to a more limited extent and so are excluded from the definition of "participants".)

d) LEA's

In order to obtain a sufficient number of functional classrooms for the study, four LEA's were approached. One of these LEA's had an official system of records. Although all were slightly surprised by the project they granted permission for it to go ahead, viewing it as contributing to knowledge about school-based in-service work, and wished it

well. Details of the project and the researcher's transportation constraints were explained to the LEA advisers who suggested 28 nurseries which could be approached. Of these nurseries, 22 accepted the researcher's invitation to participate in the study.

Treatment

Data were collected from each functional classroom at regular intervals during their period of participation. Each classroom in the sample received, as far as possible, identical treatment in terms of researcher time, availability of record-keeping and curriculum related resources, and the use of the micro itself and all its peripherals. The micro system was a 48k machine with dual disk drives, a thermal printer, and "add-ons" which included a drawing and colouring device. The photographs at the start and end of this thesis are included to illustrate the machine in operation in nursery settings. The software used included a wordprocessing program and a database program (the design for the latter was specified by the researcher whilst the former was obtained "off the shelf"). The operating instructions for these programs were written by the researcher. Members of staff, and interested others, examined the potential of a micro for nursery settings, but they were mainly to consider it as an aid to nursery staff when keeping records of individual children's progress. From the outset many options were built into the design of the experiment so that participants had the freedom to make

decisions and choices which were relevant to their own settings and their own experiences.

The first "week" of the intervention (which lasted at least four days and could be up to ten days depending on the number of participants and the time which they had available) is termed "interval 1" and was documented by means of fieldnotes. The participants were asked to examine a set of record-keeping materials and to consider what type of records they would like for their particular nursery. They usually worked individually or in small groups with the reseacher to examine existing formats of records which were set up on the micro. After sufficient experience with the micro, they could select a record format to set up for their own nursery. The person in charge of the nursery usually made the final decision as to what this should be, but each individual participant was encouraged to discuss the pros and cons of various record structures and to make modifications to items within their own format, for example where the meaning was ambiguous. The researcher typed in whatever system of records the nursery staff had chosen, to enable them to have a real system of their own choice as quickly as possible.

A working system of micro-based records was set up before the end of interval 1 so that some time could be spent by everyone putting in information about children and reading back the stored details and summaries.

The participants themselves did complete written instruments at the end of interval 1 but these were of their own reflections about the micro-based record-keeping system and issues that arose in the first week rather than a literal description of events and their responses which is what the fieldnotes aimed to be. (The participants' individual and professional group responses will be discussed in Chapters 8 and 9 after the presentation of the main results in relation to the predictor variables, Chapter 6's consideration of the process events which occurred during the experiment, and Chapter 7's content analysis of nursery records.)

The follow through period of approximately one school term following the departure of the experimenter and the computer ("interval 2") enabled staff in the functional classrooms to continue with their involvement in the micro-based record-keeping project through the use of sheets which simulated the format of records they had developed on the micro at interval 1. This period was also designed for the researcher to document attitudes and responses to the project over a longer period of time.

"Interval 3" was the time period beyond the school term of the main intervention and follow through. It was designed to be an assessment point for ascertaining whether or not each functional classroom was going to make the fullest use of the resources and record-keeping adaptations that had been accumulated during the course of the project.

Analysis

The statistics used to test the hypotheses in this chapter are chi squares for the 2 by 2 contingency tables. Two-tailed tests with levels of significance of $P<0.01$ and $P<0.05$ are reported. The statistics are employed here and in Chapters 7 and 9 as indicators of the strength of associations in the case of chi squares and as indicators of differences in the case of Z values. They are used in this way although the methods of sampling and lack of randomness do not meet the full requirements for most statistical methods as is often the case in social science.

Summary of main results

a) Assessment at interval 1

More than two-thirds of the functional classrooms achieved a high level of experimental success and in only a third of cases was success at a lower level, in that staff did not spend as much time on the project procedures. Staff usually approved of and participated in the full set of experiment activities during the week of the initial intervention. They were encouraged to make record-keeping adaptations to suit themselves and the circumstances of their nursery. The main activities of the experiment included, a) examination and discussion of record-keeping materials; b) using the micro's wordprocessing and database programs; c) using the micro-based system they had tailored to their own nursery and to their nursery children; d) critically discussing record-keeping and micro-based record-keeping. Staff in virtually all functional classrooms completed this demanding list, a) to d), of experimental activities. The activities were demanding in that they required staff time, concentration, energy, and a willingness to switch from other activities and adapt to using the micro and examining curriculum-related topics. The type of application which was required was sometimes in sharp contrast to what the teacher or assistant had just been busily engaged in. For example, one participant moved from the physical task of cleaning up a child with diarrhoea to the intellectual one of grappling with the intricacies of learning to use the micro.

A classroom was categorized as showing a high level of success if the staff spent longer than three hours completing procedures a) to d). This was calculated as the sum of time devoted by individual participants. In the classrooms with low levels of success, members of staff had fundamental objections to some aspect of the project or there were individual reasons which interfered with full completion of each procedure. There was one extremely strong objection, for example, to the notion of keeping any micro-based records on young children. The particular nursery teacher concerned was content to write records for the project about "pretend children" but not about real ones.

When responses to the record-keeping aspects of the project were disentangled from the responses to the micro it was found that staff in nearly two-thirds of the functional classrooms exhibited a great deal of interest in record-keeping and curriculum-related elements of the project. These classrooms proved their interest by going over and above the project requirements and requesting at least one further item from the total available set of materials i.e. they asked for more than the initial set which were presented at all nurseries.

b) Assessment at interval 2

During the experimental period of one school term follow up there was again an extremely high rate of success with

regard to completion of micro-based record-keeping simulation sheets.* There was some variation among classsrooms as to the quality of sheets produced and the level of detail provided by different systems: no two schools kept an identical format of sheets. This finding was a surprise considering the input to each nursery was provided by the same researcher with a limited set of record-keeping materials to hand. There was certainly a difference in take up of project ideas and materials, so the factors affecting this will be examined later.

c) Assessment at interval 3

Beyond the term's follow up, about one third of the sample of classrooms incorporated project record-keeping materials and ideas in the systems they employed. A further quarter of the sample planned to make some use of the ideas gained during the course of the experiment; for example, the staff went on to participate in LEA level work on the development of a new system of official nursery records in the two counties which had not previously had an LEA standard system.

* Note that the Appendix provides examples of micro-based record-keeping forms i.e. simulation sheets.

Results in relation to predictor variables

The first theme around which the results will be presented relates to LEA policy on nursery record-keeping and the existence or absence of record-keeping in the classroom immediately prior to the start of the intervention experiment. The details of the individual hypotheses relating to both these variables will be given below.

The second theme concerns hypotheses relating to quality and type of curriculum. The predictions were that functional classrooms with good curriculum, regular team discussions, and structured programmes would achieve high level experimental success.

The third theme is an examination of a group of demographic and context features which might be expected to be related to outcomes. Reviews of the evidence do not lead to clear cut predictions of relationships between context variables such as staff:child ratios and child performance for example (Nuttall, 1982). Despite the difficulties of making accurate predictions as to the relationships between outcomes and demographic and context variables some were attempted. Initial predictions were that relatively small nursery units with relatively low adult:child ratios and long-stay children (rather than a rapid input and output of large numbers of "two-termers") would be more successful in terms of this experiment's outcomes. Recent evidence about age in relation to the impact of curriculum change has been

contradictory although in the past older people generally were expected to be loath to take up new ideas and may have been treated as such (Macintosh, in preparation). It was hypothesized here that younger age of classroom leaders could be a positive feature in relation to adaptation to micro-based record-keeping and so will be considered in the analysis.

The fourth theme takes account of features associated with management and organization which could facilitate the demands of the experiment. The variables which were considered were: differentiation of staff roles (i.e. teachers having the help of nursery assistants), the allocation of structured breaks for staff, and the presence of student or parent helpers in the classroom. It was predicted that the presence of such variables would be associated with higher level experimental outcomes.

Further details of the individual predictor variables will now be given and the results discussed.

a) Record-keeping variables

i) Prior record-keeping

It was predicted that the functional classrooms which had been record-keepers immediately prior to the start of the intervention experiment would respond differently to experimental demands. It was thought that the record-keepers would be more enthusiastic and spend larger amounts of time involved in project activities. Slightly less than half the functional classrooms had been prior record-keepers (private notes which staff kept and class curriculum notes which were occasionally kept were not sufficient for this definition of keeping records).

There was no significant difference at all on the basis of prior record-keeping in relation to other outcomes at interval 1 (Table 5.1). Although there was a trend for prior non record-keepers not to keep micro-based simulation sheets there was no significant difference between groups at interval 2 either.

At interval 3, the association between previous record-keeping practice and the final take up of project resources was significant, $P<0.01$.

ii) LEA policy on record-keeping

It was hypothesized that where there was an LEA policy in favour of nursery record-keeping and an already constructed form for the keeping of standard records the staff in the

Table 5.1: Prior record-keeping in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Kept records previously	13	4	
Had not kept records	14	7	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Kept records previously	13	4	
Had not kept records	10	11	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Kept records previously	16	1	
Had not kept records	14	7	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Kept records previously	12	5	
Had not kept records	0	21	$P<0.01$

Note: the tests of significance for Tables 3.1-3.14 are all for 2 by 2 chi squares.

functional classrooms might be highly sensitized to the practicalities and critical issues involved in record-keeping and that they could be well prepared to play leading roles in a record-keeping intervention experiment. Two-fifths of the sample (just a slightly lower proportion than the national average reported in Chapter 3) did have an LEA system of records available to them. What was interesting was that only half of the sub set had chosen to use the standard forms whereas the respondents in the study of City and County (reported in Chapter 4) did make use of their LEA prescribed systems of record-keeping.

The findings were that the achievement of high levels of experimental success in terms of completing the demanding list of activities at interval 1 did not appear to be dependent upon policy for nursery record-keeping (Table 5.2). Surprisingly, and against predictions, only a third of the classrooms where LEA records were available to them expressed a great deal of interest in the record-keeping and curriculum components of the project. However, two-thirds of the classrooms with no LEA policy of providing records showed interest in this aspect of the project. So as well as being no more likely to achieve a high level of experimental success the classrooms belonging to LEA's with standard systems were less likely to demonstrate interest in the practical and critical issues relating to record-keeping and curriculum matters. The association between presence or absence of LEA policy on nursery records and demonstrated

Table 5.2: LEA policy on record-keeping in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
LEA standard records	10	4	
No LEA records	17	7	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
LEA standard records	5	9	
No LEA records	18	6	P<0.05

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
LEA standard records	10	4	
No LEA records	20	4	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
LEA standard records	6	8	
No LEA records	6	18	ns

interest in record-keeping and curriculum components of the project during the course of the first intervention week was significant, $P<0.05$. Note that half the sample with LEA records available did not use these and so interpretation of the results requires caution (further analysis by degree of use of LEA records would reduce already small cell sizes to a level where statistical testing is not possible and hence such an analysis has been rejected).

For interval 2 there was no measured association between the keeping of micro-based record-keeping simulation sheets and LEA policy with regard to the availability of LEA nursery records.

There was no statistically significant association between continued use of project adaptations of record systems and LEA policy on nursery record-keeping.

b) Curriculum variables

i) Quality of curriculum

The quality of nursery curricula has not previously been defined operationally, so an attempt was made to do this. The definitions and scales which follow are just "one researcher's view" but note that the same researcher rated all the nurseries, after spending an extended period of time in them, acting out the same role (in this case, as a researcher and school-based in-service course provider).

A "good curriculum" rating required a high composite score from three scales, each with a range from 1-5 points. The first scale is of "appropriateness" of staff behaviour and expectations with respect to the developmental stages of individual children and the group. In order to score 5 on this scale the staff need to act appropriately towards the children, offering them a range of activities in a non-threatening way and neither forcing them to do tasks beyond their levels of skill and social capacity nor neglecting to stimulate them. An example of "inappropriateness" scoring only 1 was where the nursery teacher daily terrorized her four year olds about their bags of reading words which they were pressurized into taking home to "learn". (Out of fear many of these four year olds "forgot" to bring back their word bags.) The same teacher did not redeem herself with respect to her three year olds whom she forced to sit for long periods engaging in tasks such as "playing with a Fisher Price toy". These three year olds were remonstrated with when they left in boredom after a few minutes. Even the use of expressive materials such as sand, dough, and paint were presented in a threatening way to the children. Nevertheless, in many of the other classrooms the staff demonstrated that they were sympathetic to the needs and interests of children and achieved scores 3 or more on this scale of appropriateness.

The second scale is one of "effort" and is concerned with the degree to which advantage is taken of nursery

facilities, equipment, and materials. Making the best of the more difficult environments and lack of money for refurbishment and fresh supplies appears to require knowledge, skills, and committed application. But having the best imaginable facilities does not automatically mean staff use these to the advantage of the children and thus it is not any easier in the best equipped nurseries to score 5 for "effort". An example of a factor which contributed to one classroom rating only 1 for effort was the fact that they got out the previous summer's stored art work for display rather than allowing the new intake of children to make a fresh summer term frieze. A second factor in lack of effort at this nursery was the way the staff had blocked off use of the home corner as it was too difficult for them to maintain. Some of the staff in other classrooms were so ingenious, inspired, and dedicated that they contributed to an achievement of 5 on this scale of effort.

The final scale is one of "time". The functional classroom would score 1 when not even the minimum hours were given to nursery work; for example, staff often arrived after the children or at least simultaneously and rarely stayed at the end of session for more than two or three minutes. The functional classroom could score 5 when extra staff time of more than 10 hours of unpaid time were given in a week. Such extra time was for preparatory work, home visiting, and all the ancilliary tasks, administration, and reading which are necessary, but cannot be completed when the children are

in the nursery.

The median point on the total scores for all three scales was 8 and this was taken as the cut off point for the definition of good curriculum. It was found that the balance between classrooms maintaining a good curriculum (i.e. scoring 8+) and those not was 50:50. It was hypothesized that staff in the classrooms with good curricula would also have positive attitudes towards an intervention which offered materials and ideas of practical relevance and that there would be a greater impact here.

Every single one of the functional classrooms with good curricula achieved a high level of experimental success with staff participating fully in the list of activities for interval 1 (Table 5.3). Consistent with predictions, functional classrooms with low quality of curricular provison were much more likely to demonstrate less interest in the record-keeping and curriculum components whilst staff in 17 of the classrooms with high quality curricula proved their interest by requesting and assimilating additional materials or by spelling out their own ideas at length. So, at interval 1, both the associations between quality of curriculum and experiment outcomes were significant ($P<0.05$) and in a direction which linked good curriculum with successful outcomes.

At interval 2 the vast majority of functional classrooms

Table 5.3: Quality of curriculum in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Good curriculum	19	0	
Not good curriculum	8	11	P<0.01

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Good curriculum	17	2	
Not good curriculum	6	13	P<0.01

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Good curriculum	17	2	
Not good curriculum	13	6	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Good curriculum	9	10	
Not good curriculum	3	16	ns

with good curricula kept micro-based record-keeping simulation sheets whilst more that half of the classrooms with somewhat poorer curricula did not keep sheets for a number of reasons that might be categorized as insufficient interest in curriculum matters. The association did not reach statistical significance.

Whereas most classrooms with poorer curricula did not keep records at interval 3, half of the ones with good curricula did. This last result did not reach a level of statistical significance but is still interesting from the point of view of providing information about the long term impact of a curriculum-related intervention experiment on classrooms with different levels of initial curricular provision. (Ten of the seventeen prior record-keepers also had good curricular provision and as this is a slightly higher proportion than for the group as a whole there is a slight association between the two variables.) Of the variables examined, so far, the existence of a good curriculum appeared to have quite some effect on long term take up of project resources even if this effect was less pronounced than in the cases of the prior record-keeping classrooms.

ii) Team discussion about curriculum

Seventeen of the classrooms had full team discussions about nursery curriculum matters at least weekly although they did not necessarily show evidence of high quality nursery provision for the children (on the above definition of "good

curriculum"). The experiment set out to examine whether or not a greater incidence of curriculum-related discussions amongst staff would prepare them to make greater use of project resources as defined by the measures of experimental success over time.

The result was that two-thirds of the curriculum discussers showed an interest in record-keeping aspects of the project whilst only half of the other sub group did this (Table 5.4). And whilst three-quarters of the classrooms which had curriculum discussions achieved high levels of experimental success and displayed interest in the project at the end of interval 1, the staff in only a slightly lower proportion of the functional classrooms without curriculum discussions achieved these positive outcomes. Neither of the results at interval 1 were significant.

At interval 2 there was scarcely any difference between sub groups on the measure of whether or not micro-based record-keeping simulation sheets were kept.

The functional classrooms with established curriculum discussions were divided quite evenly between those which kept project adaptations of their record-keeping systems and those which did not. However, more than four-fifths of the other sub group did not immediately use the project resources and record-keeping adaptations. The association between presence or absence of curriculum discussion and

Table 5.4: Team discussion about curriculum in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Team discussions	13	4	
Rare team discussions	14	7	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Team discussions	12	5	
Rare team discussions	11	10	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Team discussions	14	3	
Rare team discussions	16	5	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Team discussions	9	8	
Rare team discussions	3	18	$P<0.05$

this outcome at interval 3 was significant, $P<0.05$.

iii) Type of curriculum

It was hypothesized that the modern-style structured approach to teaching children requires considerable evaluation of provision and a willingness to change and adapt teaching methods and that such characteristics might predict higher levels of experimental success at interval 1 and other positive outcomes. It was also thought that structured curricula would benefit from record-keeping on individual children. A structured curriculum is defined as provision of two set learning times for the children attending in each morning or afternoon session (i.e. there was additional adult input to the children's learning at a set time which was other than story time). This is the same definition of structured curriculum which was used in a large observational study of pre-school children in nursery schools, classes, and playgroups (Sylva et al., 1980). There were 17 functional classrooms which met the criteria for having a structured curriculum.

In terms of experimental success at interval 1 there was little to distinguish between the groups of classrooms on the basis of their curricula type (Table 5.5). It was a surprising finding that staff in two-thirds of the unstructured classrooms demonstrated pronounced interest in the record-keeping and curriculum-related components of the project whilst only half the structured classrooms acted in

Table 5.5: Type of curriculum in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Structured curriculum	12	5	
Unstructured curriculum	15	6	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Structured curriculum	9	8	
Unstructured curriculum	14	7	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Structured curriculum	14	3	
Unstructured curriculum	16	5	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Structured curriculum	7	10	
Unstructured curriculum	5	16	ns

the same way. Neither of the findings at interval 1 was significant statistically.

When it came to the follow up term of interval 2, more than three-quarters of both sub groups kept the micro-based record-keeping simulation sheets.

The assimilation and long term employment of project record-keeping resources was achieved in excess of a third of the classrooms with structured curricula; the same was true for only a quarter of the unstructured classrooms. This result did not reach significance.

c) Demographic and context variables

i) Age of the functional classroom leader

The number of classrooms with "young" functional classroom leaders was 12. Youngness was based on the functional classroom leader's age being under 36. Macintosh (in preparation) chose 35 as the upper limit for "youngness" in her own empirical work, after reviewing studies based on the age of teachers. The variable here has been based on the classroom leader's age rather than an average for the whole of the staff because usually the classroom leader decides on record-keeping practice and makes decisions relating to curriculum change. It was hypothesized that the classrooms with young classroom leaders would be more likely to achieve higher levels of experimental success at interval 1 and positive outcomes at intervals 2 and 3.

The results did show a slight trend in the expected direction although this did not reach statistical significance (Table 5.6). Whilst, with only one exception, the classrooms staffed by younger leaders achieved high levels of success with respect to their participation in the experiment activities at interval 1, two-fifths of the classrooms with older leaders did this too. And the age of functional classroom leader appeared entirely unrelated to the amount of interest that was demonstrated in record-keeping components of the project at interval 1.

The keeping of simulation sheets at interval 2 did not appear to be associated at all with age of leader.

At interval 3, the classrooms with young leaders split exactly into those which continued to use project adaptations of records and those which did not. But only a third of the classrooms with older leaders immediately continued to use project adaptations. To sum up the results for this variable, none of the findings in relation to age of staff and experimental effects was statistically significant.

ii) Number of terms the children stayed in the functional classroom

It was hypothesized that when the functional classroom was of the traditional type with each child usually spending 3-6 terms in the nursery there might be a greater need and

Table 5.6: Age of the functional classroom leader in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Leader young	11	1	
Leader not so young	16	10	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Leader young	8	4	
Leader not so young	15	11	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Leader young	10	2	
Leader not so young	20	6	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Leader young	6	6	
Leader not so young	6	20	ns

practical possibility for closer assessment of the children than could ever be the case when very large numbers of children pass more fleetingly through staff hands. It was also thought that the traditional type of long stay settings would have a greater likelihood of achieving higher levels of experimental success. The short stay classrooms, as defined here, kept each child for only two terms and such nurseries provided a limited curriculum which catered for four year olds rather than the full range of 3-5's. There were 21 short stay classrooms in the sample.

The findings were that demonstration of great interest in record-keeping and curriculum components of the project did not appear to be dependent upon the number of terms that children stayed in the classroom (Table 5.7). And neither was the level of experimental success achieved at interval 1.

It was found that a larger proportion of short stay classrooms than long stay ones kept micro-based record-keeping sheets in the term following interval 1; but this trend was not statistically significant.

At interval 3, whereas only a tiny fraction of the short stay classrooms made continued use of the project resources and adaptations to records, half the long stay classrooms did ($P<0.05$).

Table 5.7: Number of terms the children stayed in the functional classroom in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Short stay classrooms	15	6	
Long stay classrooms	12	5	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Short stay classrooms	13	8	
Long stay classrooms	10	7	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Short stay classrooms	18	3	
Long stay classrooms	12	5	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Short stay classrooms	3	18	
Long stay classrooms	9	8	$P<0.05$

iii) Number of children per day in the nursery

It was predicted that the small schools or units with fewer than 100 children a day attending would have better provision for the children and fewer of the problems associated with the running of very large schools or units (c.f. Sylva et al., 1980). There were 21 classrooms in the sample which belonged to nurseries with fewer than 100 children a day in attendance.

The measure of experimental success at interval 1 reached significance ($P<0.01$); the classrooms in almost all of the small nurseries were very successful in their project participation but this was true for only half of the classrooms in the large nurseries (Table 5.8). Demonstrable interest in the record-keeping and curriculum components of the project occurred more often in the classrooms of the smaller nurseries, although not significantly so.

In all but one case, the classrooms in small nurseries kept micro-based record-keeping sheets at interval 2. The association between size of nursery and the keeping of micro-based simulation sheets was significant ($P<0.05$).

However, at interval 3, the significant differences and trends based on size of nursery were not sustained.

iv) The adult:child ratio

Adult: child ratios vary between nurseries, across LEA's,

Table 5.8: Number of children per day in the nursery in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
100 or more children	8	9	
Fewer than 100	19	2	P<0.01

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
100 or more children	9	8	
Fewer than 100	14	7	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
100 or more children	10	7	
Fewer than 100	20	1	P<0.05

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
100 or more children	6	11	
Fewer than 100	6	15	ns

and over time. During the period when the research was conducted there was considerable variation in ratios, although the trend now is for all nurseries to have a 1:13 ratio. Changes in ratios occurred in some of the participating nurseries during the course of the experiment. Therefore, the ratio that existed at interval 1 was taken for this study. The median adult:child ratio was 1:11 so those classrooms with such a ratio or better were defined as having low rations and those with ratios of 1:12 or worse were defined as having high ratios. There were 21 functional classrooms with low adult:child ratios.
It was predicted that where there were low ratios there would be greater participation in and success with experimental procedures.

Table 5.9 shows that three-quarters of the classrooms with low ratios achieved high levels of experimental success by the end of interval 1 whereas a slightly lower proportion (two-thirds) of classrooms with high ratios did this. Contrary to expectations, three-quarters of the classrooms with high ratios demonstrated marked interest in record-keeping and curriculum components of the project, whilst only half the classrooms with low ratios did the same. Note, however, that none of the outcomes at intervals 1 or 2 achieved significance.

At interval 2, slightly more low ratio classrooms than high ratio classrooms kept micro-based record-keeping sheets.

Table 5.9: The adult:child ratio in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Low adult:child ratio	16	5	
High ratio	11	6	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Low adult:child ratio	10	11	
High ratio	13	4	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Low adult:child ratio	17	4	
High ratio	13	4	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Low adult:child ratio	6	15	
High ratio	6	11	ns

Slightly more high ratio classrooms than low ratio ones continued with their use of project resources and record-keeping adaptations at interval 3. (Note that this trend was not significant.)

v) Nursery school or infant school nursery class

Nursery schools are defined as separate entities with their own headteachers who usually have no current responsibility for children older than five and a quarter years; and it was thought that there would be less emphasis on the keeping of records in such settings. Infant school nursery classes are defined as attached to primary schools (infant, first, or infant/junior combined, first/middle combined) and under the auspices of a headteacher with responsibility for older children. It was conjectured that there would be a greater emphasis on records in such classes because primary schools are usually concerned with the keeping of records. It is often declared that the ethos of the nursery school is different from that of a nursery class so the intervention experiment was designed to investigate this matter further. Fourteen of the functional classrooms were in nursery classes attached to primary schools rather than being in nursery schools. It was hypothesized that the functional classrooms in nursery classes attached to primary schools would be more likely to take up project resources and achieve high levels of experimental success.

Similarly high proportions of classrooms in both schools and

classes achieved high levels of experimental success at interval 1 (Table 5.10). Whilst nursery school functional classrooms were evenly split between those which did not, and those which did have staff who expressed a great deal of interest in record-keeping and curriculum components of the experiment, more than three-quarters of the nursery class functional classrooms expressed a great deal of interest in this domain. However, none of the findings at intervals 1 or 2 reached statistical significance.

At interval 2, only one of the classrooms in a nursery class did not keep micro-based sheets whilst seven of the nursery school classrooms did not.

At interval 3, the nursery class classrooms were evenly split between those which did and those which did not continue to use project resources and adaptations of records but four-fifths of the classrooms in nursery schools failed to do this. So, as predicted, the trend was for nursery class classrooms to make most use of the project resources related to record-keeping. However, this finding in relation to school type and experimental outcome at interval 3 did not reach statistical significance.

vi) A single functional classroom or complex unit

A nursery school or class could be a single functional classroom or a "complex unit" with two or more functional classrooms. For example, the sample included some nursery

Table 5.10: Nursery school or infant school nursery class in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Nursery school	16	8	
Nursery class	11	3	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Nursery school	12	12	
Nursery class	11	3	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Nursery school	17	7	
Nursery class	13	1	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Nursery school	5	19	
Nursery class	7	7	ns

schools which were complex units although not every nursery school was a complex unit; the sample included one nursery class which was a complex unit. There were 15 cases of single classrooms and it was hypothesized that staff in these classrooms would find it easy to work together and coordinate their use of project resources so that the level of experimental success would be higher for this group. Such classrooms might also gain more researcher time and this, too, might have positive effects on outcomes.

Although the measure did not reach significance, four-fifths of the single functional classrooms expressed a great deal of interest in record-keeping and curriculum components of the project whilst only half the complex unit classrooms did so (Table 5.11). In all but one case, the single functional classrooms achieved a high level of experimental success whilst nearly a half of the cases from complex units did not ($P<0.05$).

All but one of the cases, where no micro-based simulation sheets were kept, belonged to complex units although the association with this outcome was not significant.

At interval 3, the single functional classrooms were quite evenly divided between those which kept their project adaptations of records and continued to use project resources and those which did not. However, only a fifth of classrooms from the complex units made use of the project

Table 5.11: A single functional classroom or complex unit in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Single classroom	14	1	
Complex unit	13	10	P<0.05

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Single classroom	12	3	
Complex unit	11	12	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Single classroom	14	1	
Complex unit	16	7	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Single classroom	7	8	
Complex unit	5	18	ns

adaptations and materials immediately after the follow up. Nevertheless this association was not significant.

d) Management and organization variables

i) Differentiated staff roles

Twenty-six of the functional classrooms belonged to nurseries where the roles of nursery teacher and nursery assistant were clearly distinguished and teachers and assistants worked together. The nurseries with such differentiated staff roles were usually likely to provide a complex programme for the children. The other classrooms were in nurseries where nursery assistants kept registers of children and ran their classrooms on their own, or in two cases of undiffentiated classrooms, teachers worked on their own. The classrooms with such undifferentiated staff roles were usually likely to offer a simpler form of provision. It was hypothesized that functional classrooms in nurseries with differentiated staff roles would achieve higher levels of experimental success.

Whilst three-quarters of classrooms with role differentiated staff showed a great deal of interest in the record-keeping and curriculum components of the project only a third of the role undifferentiated ones did so, but this trend was not significant (Table 5.12). There was another trend showing more of the role differentiated classrooms achieving high levels of success at interval 1 but this was also not significant.

Table 5.12: Differentiated staff roles in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Undifferentiated roles	6	6	
Differentiated roles	21	5	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Undifferentiated roles	4	8	
Differentiated roles	19	7	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Undifferentiated roles	6	6	
Differentiated roles	24	2	$P<0.05$

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Undifferentiated roles	0	12	
Differentiated roles	12	14	$P<0.05$

At interval 2 nearly all the classrooms in nurseries where staff roles were differentiated, micro-based simulation sheets were kept whilst this was the case for only half the others, $P<0.05$.

At interval 3, none of the undifferentiated role classrooms kept up their use of project adapted records and continued to use the resources whereas nearly half the classrooms from the nurseries with clearly distinguished staff roles did this, $P<0.05$.

ii) Structured breaks for staff

Whether or not a member of staff in the functional classroom could take a break away from the children during part of the morning or afternoon session was a matter of nursery policy relating to the organization and management style of the person in charge. In seventeen cases there were structured breaks for staff in addition to lunch time. It was hypothesized that a project requiring breaks away from the children in order to carry out project activities would be best accommodated in classrooms which had already developed strategies for coping with the children when there was one fewer staff members present in the classroom.

Somewhat surprisingly there was a greater trend for the staff in classrooms without structured breaks to demonstrate pronounced interest in record-keeping and curriculum components of the project and to achieve high levels of

experimental success (Table 5.13). However, these findings did not achieve statistical significance.

At interval 2, more than four-fifths of cases without breaks for staff completed micro-based record-keeping sheets and nearly as high a proportion of the other group did this also.

At interval 3, a third of the classrooms without breaks continued to make use of project adapted records and resources compared with a quarter of the other group. The findings at intervals 2 and 3 were not significant.

iii) Presence of student or parent helpers

There were 21 functional classrooms with student or parent helpers. The classrooms were not necessarily able to accommodate both students and parents, so this variable was coded for one or other, as well as both. It was hypothesized that having student or parent helpers in the classroom would be associated with openness towards others and tolerance towards minor upheavals and the influx of new ideas that would occur during the experiment. If there was an existing willingness to cope with the demands of parents or students then there might also be a willingness to participate fully in the experiment. The classrooms with student helpers were those viewed by NNEB tutors with sufficient confidence for them to permit students on placement. The classrooms which welcomed parents as helpers

Table 5.13: Structured breaks for staff in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Structured staff breaks	8	4	
No structured breaks	19	7	ns

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Structured staff breaks	6	6	
No structured breaks	17	9	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Structured staff breaks	8	4	
No structured breaks	22	4	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Structured staff breaks	3	9	
No structured breaks	9	17	ns

appeared to be looked upon favourably by the parents who volunteered to help.

More than four-fifths of the classrooms with helpers achieved high level experimental success whilst only half of the classrooms without helpers did do, $P<0.05$ (Table 5.14). Whilst a clear majority of classrooms with helpers showed great interest in record-keeping and curriculum components of the project, only half of the helper-less group did this, although this finding was not statistically significant.

At interval 2, it was only an insignificant trend for more of the classrooms with helpers to keep micro-based record-keeping simulation sheets.

It was found that all 12 classrooms with student or parent helpers used project record adaptations and resources beyond the follow up. Hence this measure at interval 3 was significant, $P<0.01$.

Discussion of record-keeping variables

Amongst the non record-keepers there must have been some latent interest in the notion of nursery records or at least an openness towards the possibility, as experimental success at intervals 1-2 did not appear to depend on the existence of prior record-keeping. The only outcome clearly associated with prior record-keeping was continued use of project adaptations and resources at interval 3. Even this

Table 5.14: Presence of student or parent helpers in relation to experimental outcomes at intervals 1-3

	Interval 1 experimental success		
	High level	Low level	
Helpers in the class	19	3	
No helpers	8	8	P<0.05

	Interval 1 interest in records and curriculum aspects of the project		
	Much interest	Less interest	
Helpers in the class	15	7	
No helpers	8	8	ns

	Interval 2 completion of micro-based simulation sheets		
	Sheets completed	No sheets	
Helpers in the class	19	3	
No helpers	11	5	ns

	Interval 3 long term use of project adaptations and resources		
	Long term use	None	
Helpers in the class	12	10	
No helpers	0	16	P0.01

outcome might not have been significant had it not been for the delay in final take up of project materials by a number of classrooms which became involved in record-keeping developments other than the one described here. The classrooms with LEA official forms of nursery record-keeping were not necessarily prior record-keepers. Those with LEA official records showed less interest in the record-keeping and curriculum related aspects of the project at interval 1. There was no statistically significant link between presence or absence of LEA official records and other outcomes at intervals 1-3. This was not an expected finding and may be a product of the split between users and non-users of an LEA official system i.e. non-users were not just non-users but actively antagonistic towards the keeping of any records on nursery children.

Discussion of curriculum variables

Success at interval 1 and demonstrated interest in the record-keeping and curriculum components of the project appeared to be dependent upon the existence of good quality curricula. So active participation in the early stage of the project was much more related to this curriculum predictor variable than to the purely record-keeping related variables. The results for intervals 2-3 were not significant, however. Although it had been predicted that prior team discussions about the curriculum would be related to positive outcomes of an experimental in-service project this was not shown to be the case. The results of trends of

association between team discussions and positive outcomes at intervals 1-3 were not shown to be statistically significant. Neither was it found that type of curriculum was associated with particular outcomes at intervals 1-3. Therefore, staff offering any type of curriculum seemed to be able to make positive gains from the project. Perhaps this was because the research succeeded in its aim to offer a flexible package of resources that individuals could choose from and tailor to their needs. Whereas, if the research project had offered a more cut and dried set of materials and asked staff to assimilate and use these the results would have been different: probably only those classrooms matching the ideology and style of the materials offered would have adopted them.

Discussion of demographic and context variables

Another interesting result that may also be associated with project aims was that age appeared to have no significant part to play in the take up of project ideas and resources. Although accepted wisdom declares younger people are quicker and better able to adapt to new things, the present project shows that with well-designed presentation of ideas, even something as complex and potentially threatening to beliefs and the status quo of current practice as micro-based record-keeping, could become acceptable to classroom leaders of all ages.

How long children stay in classrooms made no statistical

difference to the experiment outcomes at intervals 1-2. However, at interval 3, the classrooms with long stay children were able to make continued use of project record-keeping adaptations and resources. A reason for this may be that the greater needs of the children in long-stay settings increases the likelihood for record-keeping. Or another reason could be that there was simply more opportunity to learn what the children could and could not do when they stayed longer in the nursery and thus records to document development were possible.

Sylva et al. (1980) suggest, on the basis of their observations, that smaller nurseries are better for children. Echoing evidence has been derived from the present study in that there are significant associations between the small size of nurseries (as measured by there being fewer than 100 children a day) and positive outcomes at intervals 1-2. A greater degree of enthusiasm for the project was evinced by staff in the smaller nurseries which may also have had a smaller share of the problems associated with the maintenance of larger environments. The final project outcome of interval 3 take up of record-keeping adaptations was not related to size of nursery. Prior record-keeping had not been dependent upon size of nursery either, so this long term record-keeping outcome was not so surprising.

As has been found previously, slight variations in

adult-child ratio do not, on their own, necessarily have much effect. Staff have means of getting round staffing difficulties with great ingenuity. Also, extraordinarily generous adult:child ratios can be the product of poor provision. In one case in the sample, the headteacher allocated an extremely poor nursery teacher very few children. Whatever the explanation, the results of links between adult:child ratios and experiment outcomes at intervals 1-3 were not significant.

A further hypothesis was tested as to whether or not there would be significantly different results for the single functional classrooms versus the classrooms in complex units, but this hypothesis had to be rejected as the results were not statistically significant.

Discussion of management and organization variables

There were 12 functional classrooms in nurseries where staff roles were undifferentiated and nursery assistants and teachers were responsible for similar domains of work. When there was a nursery assistant with sole responsibility for a functional classroom there would be less emphasis on educational provision and more on caring for the physical needs of children, because this was usually the emphasis of nursery assistant training courses. The teachers who worked on their own in classrooms of nursery schools with undifferentiated staff roles lacked the support of a nursery assistant to help them in their work. The functional

classrooms where staff roles were clearly differentiated gave greater emphasis to curriculum development and had more complex educational provision. In such classrooms the nursery teacher could expand the curriculum and have the help and support of one or more nursery assistants. When LEA funds are available the policy is to move towards having classrooms with differentiated staff roles.

The classrooms, in nurseries with the advantages of differentiated staff roles did not appear significantly different at interval 1 in terms of interest in record-keeping and curriculum elements of the project and achievement of high level success. At interval 2, the differentiation of staff roles was related to the keeping of micro-based record-keeping sheets. Half the classrooms in nurseries with undifferentiated staff roles just did not participate in this part of the project. At interval 3, there was another significant difference in that long term use of project adaptations and resources was related to differentiated roles.

The occurrence of structured breaks for staff appeared to have no connection with outcomes. Hence the slotting in of project activities could occur successfully regardless of whether or not members of staff were experienced at freeing themselves from the children, to attend to project demands.

The presence of helpers in the classroom was associated

with positive outcomes at intervals 1 and 3. Only the trend at interval 2 was not statistically significant. So some element of parental or student help seemed to pre-dispose classrooms to accept the project researcher and make full use of project resources. If classrooms were already open in acceptance of adults other than regular staff in the classroom they may be more able to accept school-based in-service projects.

Summary of results in relation to predictor variables

Prior record-keeping appeared to be related to the final outcome of continued use of project revisions and resources whilst the provision of LEA official records was merely associated with a lack of interest in record-keeping and curriculum components of the project. Good quality curricula were found to be associated with interest and high level success i.e. a great deal of time was spent on project involvement at interval 1. The existence of team discussions and a particular type of curriculum did not appear to be significantly related to positive outcomes. Age of functional classroom leader had no effect either, and is echoed by a recent finding that "career-mindedness" and the associated qualities of high interest in work-related topics does not depend upon a person being aged 35 or under (Macintosh, in preparation). The children's length of stay in the classrooms came into play with regard to long-term use of project revisions and adaptations: long-stay classrooms were more likely to maintain such revisions. Smaller nurseries were linked with a greater likelihood of positive outcomes at intervals 1-2. Adult:child ratios did not appear to be related significantly to outcomes and nor did it make any statistically significant difference whether or not the classrooms belonged to nursery schools or classes and whether or not the unit comprised a single classroom. When staff roles were clearly differentiated there was a statistically greater likelihood of micro-based record-keeping sheets being kept at interval 2 and interest

shown in record-keeping and curriculum elements of the project at interval 1. But structured breaks for staff did not appear to be associated with anything. There were statistically significant and positive outcomes in relation to the presence of helpers in the classroom.

If it is assumed, for the sake of argument, that positive outcomes from this particular experiment are a good thing and result from the "best" nurseries, then the key components of these "best" nurseries may be summed up as record-keepers with good curriculum, long-stay settings for children in the whole 3-5 years range, relatively small nurseries, having clearly differentiated staff roles, and fostering the use of unpaid helpers in the classroom. Not relevant to this definition of the "best" nurseries are: frequent occurrence and emphasis on team discussions about curriculum matters, the degree to which the curriculum is structured or unstructured, the age of staff, adult:child ratios, whether or not the classroom is part of a primary school or is a complex unit, the provision of structured breaks for staff during the main nursery session, and the availability of LEA record forms.

Some of the attributes relevant and not relevant to the "best" nurseries seem counter intuitive and not necessarily congruous. This may be partly a result of the small sample size and the difficulty of attaining statistically significant results. So for future work in the area of

experimentation with both pre-service and in-service training and research and development schemes it is suggested that all the attributes (predictor variables) be incorporated into a framework to investigate differences between large numbers of pre-school settings. (See: Bayliss, 1985, for confirmation that investigation of differences between pre-school settings is required.) More than one researcher would be required for such a study and their between-rater reliability in observing and coding the predictor variables would need to be checked. An advantage of a large scale study is that it would enable the relative strengths of the predictor variables to be assessed and at the same time permit the disentangling of dependencies.

This chapter has described the method of the intervention experiment and the predictor variables in relation to the outcomes. Chapter 6 which follows is concerned with the process events which occurred during interval 1 of the experiment.

6. AN ANALYSIS OF THE PROCESS EVENTS INVOLVED IN THE EXPERIMENTAL INTERVENTION

Introduction

As was seen from the last chapter the outcomes of the experiment were various levels of experimental "success" at a sequence of time points and these appeared to be related to particular predictor variables which were discussed. The predictor variables were derived from the hypotheses concerning factors extraneous to the experiment (i.e. factors in force prior to the arrival of the researcher) that might be associated with successful implementation. However, the outcomes may also have been associated with factors related to micro-based record-keeping such as events that took place during the period when the micro was in school. These "process events" occurred during the initial week of the intervention and the aim of this chapter is to look for patterns in the relationship between process events and outcomes. The experimental intervention was to some extent a school-based in-service course; therefore, process events were documented with the hope that the findings could have implications for in-service education and training.

The method of documenting and analysing the process events

Detailed fieldnotes were made daily during the intervention period and from these the process events were coded and dichotomized. The incidence of occurrence of each process event is provided in the tables. These number counts are

not suitable for statistical testing because the events themselves are linked to the outcomes so that the events and outcomes are interdependent as are many of the process events themselves.

The measure of the highest level of "complete experimental success" is defined in this chapter as the achievement of all three of the following:

1) completion of project procedures at interval 1;
2) the keeping of micro-based record-keeping sheets at interval 2;
3) the continued use of project resources and record-keeping adaptations at interval 3.

The process events from interval 1 that will be examined in relation to this measure are: the accommodation of the micro; staff involvement in project activities; and developing records during the micro-based project. Finally the "split-time" treatment to which some of the classrooms were allocated will be described.

Only 12 out of the 38 functional classrooms achieved the highest level of complete experimental success at intervals 1-3.

Results

a) Accommodation of the micro

The first cluster of process events which will be examined in relation to outcomes relate to how the bulky microcomputer equipment was eventually quite well accommodated in all the classrooms, much to the surprise of the researcher and to some of the nursery staff themselves. Table 6.1 summarises these events.

i) The micro was set up in a convenient place

Seventeen functional classrooms had been able, with researcher advice, to set up the micro equipment in a relatively convenient place that attempted not to intrude upon the children's or the adults' normal working space and yet would not be too far from any emergencies which might arise. None of the nurseries had extraordinarily good places where the micro could be sited, and some were constrained if particular rooms had no wall socket for example. Other major constraints include cases where the micro was set up a long way away from the hurley burley of nursery activity and staff were constantly on edge to get back to the main part of the nursery and their supervision of the children.

That the micro was set up in a relatively easy to use position in the nursery appeared to be related to experimental success. Having to tackle a keyboard in a very cramped position often seemed to put off inexperienced typists in the sample (there were many of these, as

Table 6.1: The outcome of the experiment in relation to the accommodation of the micro

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
The micro was set up in a convenient place	17	59
It was not	21	10
Help was given by staff to move the micro	12	58
This was not given	26	19

indicated in Chapter 9). Operating a computer less than two feet from the floor on a nursery table was often as difficult as it was when it had to be situated on a three foot high cupboard with no means of sitting comfortably before it. Having to do a large amount of carrying of heavy computer equipment to get it in and out of safe places for overnight storage appeared also to be a disincentive for even the most determined of the new micro-based record-keeping users. In one case the micro was suddenly submerged under a mound of items from the annual jumble sale collection and thus even the most resilient of functional classroom staff were deterred from using it. Usually when the micro was set up in a suitable place staff inconvenience was minimised. The outcome was complete experimental success in 59% of these cases but only a 10% of other classrooms achieved this.

ii) Help was given by staff to move the micro

In only 12 cases did staff in the functional classrooms give help to make space for the micro and contribute to the very difficult task of carrying bulky equipment some distance along awkward routes within the school. Nursery staff were able to free themselves from classroom supervision in all 38 cases for special errands such as collecting the Christmas trees or for more regular occurrences such as putting outdoor equipment in order and opening and closing the sand pit. So the reasons for lack of help with the computer equipment were not simple impossibility of leaving the

children for a short period of time and getting colleagues to cover for them.

There was a surprisingly low number of classrooms where some help was given to unload the micro equipment and make space in the nursery for its use and where help was given to store it away at night. Of these helpful classrooms, 58% achieved complete experimental success but this was true for only 19% of the other cases.

b) Staff involvement

Table 6.2 summarises the second cluster of process events which are concerned with how the nursery assistants and teachers responded to the project: their attitude towards the researcher and factors which might disrupt their participation. Also the experimental outcomes are described in relation to whether or not the functional classroom leader fostered staff participation as a whole, and nursery assistant involvement in particular. In addition, whether or not staff took the micro home and whether or not they used "out of school" time for their work with the project are matters for consideration. Successful outcomes may also have been related to staff agreement about the form of record-keeping adopted for the course of the intervention.

i) Staff friendliness towards the researcher

In 30 of the functional classrooms, staff acted in a "friendly" way towards the researcher, and it was often indicative of something badly awry when they were less than friendly. An unfriendly classroom was categorized if one or more staff members acted in a publicly hostile way; other classrooms were designated friendly. It was an interesting finding that so many classrooms had friendly staff. Examples of several cases of unfriendliness occurred in a nursery school where the headteacher misunderstood the components of the project and had given a false picture of what was to happen, so staff appeared to react with continuous aggressive criticisms and challenges to the

Table 6.2: The outcome of the experiment in relation to staff involvement

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
Staff friendliness towards the researcher	30	37
A lack of staff friendliness	8	13
Disruptive events at interval 1	16	31
No disruptive events	22	32
Someone in the nursery encouraged and directed participation in project procedures	18	39
No member of staff did this	20	25

Table 6.2 continued

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
Nursery assistant involvement with micro-based record-keeping development	18	39
Only a low level of this	18	28
Home use of the micro	12	33
No home use of the micro	26	31
Staff use of their own time for project tasks	25	32
Own time not used	13	31
Agreement in the nursery about the micro-based record-keeping system adopted	28	39
A great deal of disagreement about this	10	10

researcher. In another nursery school, there were further cases where lack of friendliness was manifested very strongly. This may have arisen because of opposition to the specific project requests or because of previously established antagonism towards research generally. The means of registering this opposition or antagonism appeared to be exhibitions of unfriendliness towards the researcher. The researcher found the staff in the eight functional classrooms, which were less than friendly, difficult to work with for much of the time.

Complete experimental success did appear to be associated with friendliness: 37% of friendly classrooms achieved complete experimental success whereas amongst the (very low) number of unfriendly classrooms only one (i.e. 13%) achieved this.

ii) Disruptive events at interval 1

Disruptive events, often including staff members, occurred in 16 functional classrooms during the period that the micro was in school. These events ranged across serious staff ill-health (in one case early retirement was precipitated at interval 1), extensive staff absence and lack of supply cover, unusually difficult or large numbers of students to be trained, threats of nursery closure or staff cuts (the latter occurred in three cases), running battles with the school caretaker such that nursery equipment was strewn across the playground and hence it appeared unsafe for the

micro equipment to be left in the school building out of hours, break-ins to the school with the lock to the nursery store cupboard being broken open, and two cases of extraordinarily high levels of inter-staff conflict.

However, positive outcomes to the experiment did not seem to be related to the presence or absence of disruptive events of an extreme kind. Just under a third of the cases of complete experimental success (31%) occurred when there was a sequence of such events, and a similar proportion of successes (32%) arose when there were no disruptive events, or just a few of a very minor nature.

iii) Someone in the nursery encouraged and directed participation in project procedures

There were 18 cases of functional classrooms where someone who was an established member of the nursery staff (usually a functional classroom leader) persuaded and encouraged staff members to participate in the project activities at interval 1 and often went as far as to schedule staff time for the project.

In 39% of the cases where someone in the nursery encouraged and directed participation there was complete experimental success, but the same was true for 25% of the cases of classrooms without staff directing project procedures. Thus, the staff themselves directing the project was not clearly linked with complete experimental success.

iv) Nursery assistant involvement with micro-based record-keeping development

Eighteen functional classrooms had a high level of contributions by at least one nursery assistant to the development of micro-based record-keeping systems. (But there were two cases of classrooms which did not have any nursery assistants employed at all and so are excluded from this analysis.) Nursery assistant involvement with the development of micro-based record-keeping entailed more than routine compliance with project procedures at interval 1 and required that nursery assistants criticize record-keeping items and structures and make suggestions for alternatives. In two of the classrooms with high level nursery assistant involvement the three nursery assistants concerned were all keen to do further training courses to become nursery teachers and they used the intervention experiment as an opportunity to re-declare and test out their intentions. The contributions of one nursery assistant in particular were impressive as they required much of her own time to be spent writing down her concerns and suggestions for record-keeping.

Nursery assistants' high level involvement with micro-based record-keeping development was associated with complete experimental success in 39% of cases, but lack of nursery assistant involvement was linked with success in nearly as high a percentage of cases (28%).

v) Home use of the micro

Home use of the micro equipment by at least one member of staff in the functional classroom was generally rather unlikely as the equipment was so heavy, and required the use of a car in order to transport it home. There were only 12 cases of home users but they were quite impressive in that one or two members of staff would transport to their homes a very heavy 14 inch colour television and a both bulky and awkward to handle micro with twin disk drives taped onto it as well as a printer and spaghetti-like set of leads and interface connections (see the accompanying photographs at the start and end of this thesis which demonstrate the large size of this circa-1980 machinery). The sheer effort of conveying the micro equipment home and furthermore successfully connecting it all and using the written instructions to operate it there successfully was very great.

However, the outcome of complete experimental success was not apparently associated with home use of the micro. Only 33% of cases of classrooms where the micro was used by staff at home went on to achieve complete experimental success and in a similar percentage of cases (31%) this was true for the other classrooms.

vi) Staff use of their own time for project tasks

The greater proportion of functional classrooms (N=25) had at least one member of staff who used a substantial amount

of their own time to complete the experimental procedures at interval 1. This own time of more than an hour rarely included the period before children arrived in the morning when all hands were on deck to make the classrooms look welcoming and "normal" for the children to find. After this point, the staff would use their coffee breaks and lunchtimes as well as minutes or even hours of after school time to carry out project tasks. However, in a smaller proportion of classes, where the staff confined themselves to doing project tasks almost entirely in working nursery hours, problems could arise with regard to adequate supervision of the children. Despite this, there was not a relationship between staff use of their own time at interval 1 and positive outcomes of complete experimental success at all intervals.

A third of cases (where staff both used and did not use their own time for project procedures at interval 1) went on to achieve complete experimental success. The percentages for complete experimental success were 32% for classrooms where staff used their own time and 31% where they did not.

vii) Agreement in the nursery about the micro-based record-keeping system adopted

In a high proportion of cases (N=28) there was general approval by staff in the functional classrooms of the form of the micro-based record-keeping system adopted by the nursery as a whole; i.e. no one voiced a profound

disagreement. It was judged by the researcher that to have allowed individual classrooms to set up their own systems of micro-based record-keeping would have been contentious and divisive for the larger nursery schools and complex units of nursery classes. So instead, a nursery wide system was always chosen (normally by the person in charge) and discussions leading to modifications and improvements to this system were deliberately fostered by the researcher with every member of every functional classroom. Whether or not there was disagreement with the starting point micro-based record-keeping system was ascertained by the researcher during discussions which were a component of project procedures.

In only one case when there was severe disagreement about the micro-based system was there an outcome of complete experimental success, i.e. in only 10% of cases did this outcome occur. But when agreement pervaded there was complete experimental success in 39% of cases.

c) Developing records during the micro-based project

The third cluster of process events are connected with the development of the micro-based record-keeping system itself; Table 6.3 summarises these. The questions asked are whether it mattered or not if an "old" or "new" system of records was adopted for the micro-based system and if the outcome was affected by the speed with which the micro-based system was set up. The degree of change made to the micro-based form of records (not just editing of information about children) is also examined in relation to experimental success. Another factor to be considered is the total quantity of staff time spent on the task of developing their form of micro-based record-keeping.

i) An old or new system of records was used for the starting point micro-based record-keeping system

The classrooms at liberty to select between an old established system of records and adopting a fresh approach for the micro-based system were limited to 16 cases of prior record-keepers (the seventeenth functional classroom leader with records was not present in the nursery when the micro-based system was adopted in her nursery so has been excluded from this analysis). There was a number of different reasons for staff members to wish to continue with their established system of records; for example, in four cases they planned to use the project's resources to develop improvements to their present system. Counter examples were two cases where choosing to use the old system appeared to

Table 6.3: The outcome of the experiment in relation to developing records during the micro-based project

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
A new system of records was chosen for the starting point micro-based record-keeping system	9	44
An old system was used	7	100
(See text which explains why 22 functional classrooms needed to be excluded from this analysis)		

Table 6.3 continued

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
Fast speed of setting up the micro-based record-keeping system	17	29
Slower speed	20	30
Much change to the micro-based record-keeping system during interval 1	29	38
Less change	9	11
Much time given to micro-based record-keeping development	24	46
Less time given	14	7

be symptomatic of an intention to play a minimal part in project procedures. Likewise the decision to start afresh could arise for a number of background reasons, but generally was an expression of willingness to become fully involved in the project. There were seven cases of functional classrooms using their old system and nine starting afresh, using one of the formats from the project set of resources.

In 44% of classrooms which started afresh with a new system of records there was an outcome of complete experimental success. There was a much higher percentage of such success when an old system of records was employed; success occurred in 100% of these cases. (Note that 22 functional classrooms needed to be excluded from this analysis.)

ii) Speed of setting up the micro-based record-keeping system

Seventeen functional classrooms were quick to set up their system of micro-based records ready to test out the keeping of children's records in this way. (But one case was excluded from the analysis as the teacher was not present on the first two days of interval 1.) The quickest of all the classrooms chose their method of record-keeping as early as the first morning of the project. The researcher then immediately put their chosen system onto the micro for them. The person in charge of the nursery had until the end of the second project day to decide the choice for a starting point

micro-based system if they were to be defined as "quick". The slower of classrooms might not have their system decided upon until the third or even the fourth day and meanwhile would try out the micro's facilities and options by examining the demonstration systems on the micro and looking at selections of printed materials in the resource pack.

Regardless of slowness or quickness a similar percentage of cases was linked with complete experimental success; the percentages were 29% for the quick classrooms and 30% for the slow ones.

iii) Change to the micro-based system during interval 1

The great majority of classrooms (N=29) made many changes to the form itself of their micro-based system of records during interval 1. Such changes could include a major switch in emphasis in one classroom from experimental trial of lots of items about child development back to an emphasis on a series of structured headings. The minimal requirement for the definition of "many changes" was that at least a third of the content of the record structure was revised: experimented with and adjusted. In one classroom a completely different system was adopted for micro-based record-keeping simulation sheets at interval 2 compared with those which had been used on the micro at the start of interval 1.

It was found that complete experimental success occurred in

only 11% of cases when there was little change to the micro-based system of records, but when there were many changes to the system of micro-based records there was complete experimental success in 38% of cases.

iv) Time spent on micro-based record-keeping development

There were 14 functional classrooms where, for a number of reasons, relatively little time was spent on the task of micro-based record-keeping development. A "small amount" of time was defined as less than two hours per functional classroom at interval 1, for this task which was separate from gaining familiarity with the micro and learning how to use it.

Spending little time on this aspect of the project did not always mean the staff in the functional classrooms necessarily failed to grasp the principles of micro-based records or were less interested in the issues surrounding record-keeping, but in only one case (7%) where little time was spent on this aspect of the project was there an outcome of complete experimental success; whereas when a great deal of time was spent on micro-based record-keeping development there was complete experimental success in 46% of the cases.

d) Split-time treatment

The Hawthorne effect has been documented as showing the specialness of any treatment, rather than its distinct properties, may bring about change (see examples in the context of teaching, such as Wallen and Travers, 1963; Withal and Lewis, 1963; McKeachie, 1963; Watson, 1963; Blatt and Garfunkel, 1973). A variation in treatment was designed so that some classrooms had half a school term as a "cooling off" period and this was intended to help the micro seem less special or new.

The first twenty-four of the functional classrooms in the sample were assigned a "split-time" treatment. For these classrooms, interval 1 was extended to provide an initial week of the micro and researcher time, then a half school term for staff to reflect and consider their responses before a second week of the micro and researcher. Four classrooms could not be included in the analysis although they had been assigned split-time treatment. This was because they decided not to continue beyond the first week by having a second week of the micro and researcher in school. Nonetheless, they met all other conditions of participation, hence are bona fide functional classrooms for the purposes of other analyses. One further functional classroom was in a large nursery school which was assigned split-time treatment. However, the functional classroom leader in question took up post too late for her classroom to achieve full split-time treatment. Hence this functional

classroom has also been excluded from split-time treatment analyses, although again the classroom staff and leader met sufficient participation conditions (defined in Chapter 5) for them to be a bona fide functional classroom for the other analyses. Nineteen functional classroom remain which all received split-time treatment and where outcome data were collected after the cooling off period and a second week with the researcher.

Fourteen functional classrooms had a single-time treatment whereby they received one week of time with the micro and researcher and no pause of half a school term for a cooling off period and reflection, nor a second week of the micro and researcher in their classrooms.

Both split-time and single-time classrooms received identical treatment and were encouraged to carry out all the project requirements delineated in Chapter 5. They were monitored in the same way at intervals 1-3. There were staff interviews during interval 1 for all participants and the timing of the distribution of participant questionnaires (details of which will be given in Chapters 8-9) were after week 2 for the split-timers and after the end of the single week for the single-timers. Daily fieldnotes were kept for both types of treatment groups. The researcher tried to work much more intensively in the single-time classrooms in order to give the same amount of researcher input to the two type of treatment classrooms. The simple difference was

that the treatment was more compacted in time for the single-timers, and there was greater opportunity for the thorough use of resources by the split-time classrooms. There was no differences between treatment groups in term of size of nurseries and whether the classrooms belonged to nursery schools or to nursery classes attached to infant schools.

The outcome of the split-time variation was considered in terms of complete experimental success. Table 6.4 shows that 47% of the split-time classrooms achieved complete experimental success but only 14% of the other classrooms did this.

Table 6.4: The outcome of the experiment in relation to split-time treatment

	Number of cases of each process event	Percentage of the number of cases achieving complete experimental success
Split-time treatment	19	47
Not split-time treatment	14	14

Discussion of outcomes in relation to accommodation of the micro

Giving help to move the micro appeared to be strongly related to complete experimental success. This may have been because help was most usually given when staff and the person in charge had developed a high level of initial understanding of, and approval for, what was to be entailed in the project; it seemed rather hard for people to give help when they did not know what was required, or when they disapproved of micro-based record-keeping for their nursery.

It was usually important for the micro to be situated in a convenient place for the staff to use. The nurseries with reasonable places for setting up the micro were often better designed and provided for than the other nurseries. The staff sometimes appeared to have a higher level of morale and potential enthusiasm in such nurseries. With some very cramped nurseries, staff in the classrooms were necessarily limited as to what they did with any extra materials and equipment brought in for the children, and it was beyond their normal powers of ingenuity to cope with the bulky micro equipment.

Discussion of outcomes in relation to staff involvement

It was a frustrating finding that so many functional classrooms (N=16) should be in the throes of coping with disruptive events during interval 1. Some of the nurseries had already demanded delays to the start of their project involvement on account of major events such as the nursery school headteacher who was about to spend some weeks in hospital. Of the 28 nurseries approached 6 actually refused to participate because they were currently coping with major disruptions or thought that project participation might cause such a disruption. The researcher actively encouraged nurseries to maintain their involvement with project activities despite the simmering or bubbling up of potential problems; and the outcome of complete experimental success appeared to be equally distributed regardless of presence or absence of disruptive events. So perhaps future in-service work with nursery staff should ignore potentially disruptive factors or even incorporate them into the course.

The comments of several primary school headteachers were spontaneously volunteered, at the end of interval 1, and were extremely favourable about how the research had slotted into their schools without disruption. Some funtional classroom leaders even went as far as to say that the researcher had acted as a catalyst to ease tensions which had existed in the nursery.

Only in fewer than a quarter of cases were staff less than

friendly towards the researcher. Just one of these classrooms had an outcome of complete experimental success. Acting in an unfriendly way was usually accompanied by demonstrations of opposition to what the project entailed and refusal to participate fully. The cases of the most extreme unfriendliness and criticism of the project occurred in two particular nursery schools with different sets of leading events which may have contributed to problems and general unwillingness to participate more than superficially. Interestingly, four of the nine functional classrooms belonging to these two difficult nursery schools had staff who were friendly.

When staff themselves helped to direct participation in the project there was complete experimental success in two-fifths of cases. However, the incidence of such success was nearly as high for their counterparts. This may be explained by the fact that self-direction of project activities occurred in some of the cases where there had been no prior record-keeping and, as was seen in Chapter 5, none of the non prior record-keepers continued to make use of the project adaptations and resources at interval 3 which is one of the criteria for the outcome of complete experimental success.

A high level of nursery assistant involvement with the development of micro-based record-keeping could occur for a number of reasons, a main one being that it was a project

administrator's headache and if the incidence is generally as high as that reported here then it is quite a reassuring finding that to time-table in-service projects around such disruptions appears to be unnecessary.

These are of course tentative recommendations based on the findings and it is hoped that further empirical evidence will be collected about the elements which help, hinder, or appear to be unrelated to positive outcomes from different kinds of in-service training and education projects as well as research and development projects.

Chapter 7 which follows will consider the content of record forms and make comparisons with a sample drawn from the national survey (Chapter 3) and the intervention experiment.

Disruptive events additionally did not seem to have any relationship with positive or negative outcomes.

The evidence collected and analysed here suggests that in-service work should aim to build on skills of nursery staff to work cooperatively and participate fully in school-based curriculum-related development work. Experimentation with radical ideas for staff development was shown to be feasible, in a very wide range of classrooms with differing circumstances and varying responses. It was not the speed of response that mattered or who was directing participation in the project rather it was cooperative acceptance of the implications of any such decisions about such speed or direction. Therefore, there appeared to be a greater incidence of complete experimental success when the functional classroom staff members were agreeing about the format of the micro-based system, being friendly to the researcher, being flexible to adapt and change records, and giving time to developing the records. The implications are that highly cooperative nursery settings are the most favourable ones and the ones most likely to gain from school-based in-service work.

Some extras, such as the micro to use at home, may not necessarily be essential, but the sharing of resources for group appraisal before long-term investment in new equipment or materials would seem sensible. Delaying courses of in-service work because of disruptive events would be an

Summary and recommendations based on outcomes in relation to process events

Having the extra opportunities offered by split-time treatment, election on the part of functional classroom staff to give a great deal of time to micro-based record-keeping development, demonstrated willingness to change the developing system, and making use of the classroom's own established system of records to begin with, all seemed to be associated with complete experimental success. Staff friendliness to the researcher and staff consensus about the system of micro-based records adopted were also events in the process of the project which were positively associated with complete experimental success. That there existed a convenient place to set up the micro (and that the micro resided there), that staff empathized with the researcher's difficulties of moving the micro equipment and therefore gave some help with this were also processes which seemed to be important to the achievement of high level and complete experimental success.

Home use of the micro was not apparently at all essential to a positive outcome. Staff use of their own time rather than work time appeared to be unrelated to outcomes, and outside or inside direction of the project (i.e. by researcher or by staff member) similarly seemed to be unrelated to final outcomes; nor did something as radical as nursery assistant involvement in the key elements of the record-keeping project appear to have links with particular outcomes.

trying out the records in the long term.

Slightly fewer classrooms gave a great deal of time to developing their micro-based record-keeping compared with the number of classrooms which actually made a great many changes to their system. The giving of time to record-keeping development was associated with a positive outcome which may be again linked to project commitment by such classrooms.

Discussion of outcomes in relation to split-time treatment

Split-time treatment was an experimentally imposed process with extra provision for the cooling of initial reactions to the newness of the micro. The results were that half the split-time classrooms, achieved complete experimental success. However, a much smaller proportion of the single-time classrooms achieved such success. This is a finding that is in opposition to what would be expected for a Hawthorne effect and suggests that successful innovation is not dependent on newness or specialness.

Discussion of outcomes in relation to developing records during the micro-based project

All the classrooms which modified an established system of records went on to achieve complete experimental success which entailed the use of project revisions and resources. But in less than half the cases where a prior system of records was abandoned at the start of interval 1 was there was an outcome of complete experimental success. So a willingness to start afresh at interval 1 did not appear to be associated with full project involvement by the prior record-keepers. Starting afresh was from necessity in the case of the 21 prior non record-keepers and may be related to their lack of complete experimental success.

Slownesss or quickness in deciding upon a micro-based record-keeping system appeared unrelated to an outcome of complete experimental success. In extreme cases where disapproval for the project was registered, some classrooms decided upon a system of records at great speed and with minimal thought whilst other classrooms were very slow and seemed reluctant to commit themselves to trying any system at all.

It was found to be unlikely for complete experimental success to be an outcome when there had been little change in the systems of micro-based record-keeping adopted. A willingness to work on adaptations and improvements to the system seemed to be part and parcel of a commitment to

Complete experiment success did appear to be related to nursery wide consensus about the micro-based record-keeping format used at interval 1. Such consensus may have led on to the fostering of a climate where other project components could be tackled.

goal to achieve this. However, as with self-direction of participation, it was spread amongst prior record-keepers and non prior record-keepers, so the outcome of complete experimental success is split between the cases of high and low levels of nursery assistant involvement.

An outcome of complete experimental success was not apparently linked with home use of the micro at interval 1 either. Such success was hard to achieve and seemed unrelated to this particular process as the following example may demonstrate. At interval 1, one functional classroom leader took home the micro and used it extensively there during a weekend, and even took it to her son's house 30 miles away. Her functional classroom was fully involved at a fairly high level in the project during intervals 1-2 but at interval 3 the person with overriding responsibility for the nursery decided no further use should be made of project resources and none of the interval 1 revisions were employed and hence neither of the functional classrooms in the nursery achieved complete experimental success. This was even in spite of the fact that these functional classrooms were prior record-keepers.

It had been a research goal that own time as well as work time be used by participants in the project, but staff use of their own time for project tasks at interval 1 was not in any way clearly associated with an outcome of complete experimental success for all intervals.

7. CONTENT ANALYSIS OF LEA RECORD FORMS AND THE FORMS GENERATED DURING THE EXPERIMENTAL INTERVENTION

Introduction

An analysis of the content of official and schools own record forms is provided in this chapter in order to explore decisions made by practitioners as to the kinds of information they keep on individual children. (Definitions of official or standard LEA records and schools own records are given in Chapter 1 and details of the national survey to collect samples are given in Chapter 3.) Furthermore, it is possible and appropriate here to compare LEA official records with the records which were developed in the experimental nurseries described in Chapters 5-6. The comparison with the experimental records gives some clue as to the direction that record-keeping might take in the future when micros are found routinely in nurseries.

Sample

A total of 27 LEA official records were analysed for content. These records are all specifically designed for use with nursery children, although in two cases the forms are for the wider age-range 3-6 years and items cover the infant reception class as well as nurseries. A further 22 LEA records could not be analysed in detail as copies were not sent to the researcher or the ones which were sent were merely global requests for information about the child's development and progress in the nursery. Some of the LEA's

sent schools own forms from their nursery schools and classes; a random sample of 27 of these have been analysed in order to see if the schools own products are very different from the official ones.

Method

A scheme of organizing the content of nursery records was devised in order, a) to quantify the contents, and b) to compare the content of records with recommendations for nursery practice which are based on child development theories. This scheme was designed after lengthy qualitative analyses of more than 100 nursery record forms collected from a range of British sources. As far as possible, the scheme reflects the records themselves: their content and structure. The scheme is comprised of items which are commonly found on nursery records; an effort was made to avoid items which are extremely global and items which are extremely detailed. There were many difficulties in developing the coding scheme because records are often repetitive and have convoluted structures; others suffer from ambiguities and items with impenetrable meanings. Therefore, the final scheme reflects the content of clearer record forms and items.

Within each area of development the most general item is used to encompass idiosyncratic and rare items which cannot be included in the more specific items. The other items may be used to take account of phrases on record forms which are

similar but are not identical to the items specified in the scheme. In using the final scheme, repeated items are counted just once but when a single phrase covers two items on the coding scheme it is counted twice. There is only one coding of any item in the coding schems by any single record which is being analysed. Where an item such as "child can bowl a hoop" is not coded in the present scheme, the sense of the item is not lost because it is assigned to a similar item, in this case "can throw, catch, kick balls etc.". If "can throw, catch, kick balls etc." has already been coded by another item on the record form an additional coding is not made. If there had been no item sufficiently similar to "child can bowl a hoop" then the item would have been coded as "general gross motor control e.g. clumsy or well coordinated".

Discussion of method

The purpose of the scheme is to count the frequency with which particular items of child development are included on record forms. The scheme consistently underestimates the variability that there is in the organization of items, the precision with which information is requested (e.g. "can the child do this? usually with lots of adult help, with only a little help, entirely on own?"), and idiosyncracies of terminology and phrasing (for e.g. the words "social motor development" are not in common nursery parlance but were found on one schools own form).

Analysis

For Tables 7.2-7.8 the statistical tests examine differences between percentages and provide Z values with $P<0.05$ when the Z value is greater than + 1.96 or less than -1.96 for this two-tailed test.

Results

a) LEA official records contrasted with schools own

Table 7.1 shows LEA official records and schools own records to be very similar with respect to the average number of items within areas of development, and identical in the average number of 20 items per form. The LEA official records, however, more often ask for general information about the child's intellectual functioning. Both the official and schools own records equally often require details of a child's pre-maths learning and acquisition of pre-reading skills. The schools own records provide more detail about fine motor skills and there is greater allowance in this realm for items peculiar to individual nurseries: their equipment, manner of provision, and curricular intentions. Language and speech is the single area where the greatest quantity of information is requested. (As was indicated above, the number of items is consistently constrained by the coding scheme, and it is thought that the number of items on record forms is under-estimated for all groups in this analysis.)

In the area of language and speech, both official and

Table 7.1: Summary of content analyses of nursery records by areas of development (with sample sizes for Tables 7.1-7.15)

	HANDWRITTEN RECORDS		MICRO-BASED RECORDS
Average number of inclusions	In LEA official records (N=27)	In LEA schools own records (N=27)	In expt. group records (N=22)
Development of language and speech	5	5	7
General cognitive development (including attitudes to learning)	2	1	3
Pre-maths skills	2	2	4
Pre-reading skills	2	2	3
Social and emotional development	3	3	6
Physical development and gross motor skills	2	2	4
Fine motor skills and hand-eye coordination	3	4	6
Total number of inclusions	547	533	694
Average number of inclusions	20	20	32

schools own records have five items on average (Table 7.2) but the balance of priorities varies. Official forms are found to give greater emphasis to English as a second language (26% compared with 4%, $P<0.05$). This could be because the LEA advisers want to remind nursery staff of the needs of second language learners. The quality of the child's vocabulary is selected more often by the teachers who designed their schools own forms ($P<0.05$). This may be be explained by the nursery tradition of teaching vocabulary to children which has not yet been replaced by the changing emphasis on communication development in all its guises, rather than merely concentrating on isolated items of vocabulary (see DES, 1975, and Tough, 1976, for example). The advisers are more likely to be aware of such recent developments in education than are the classroom teachers.

Table 7.3 shows that LEA official forms have an average of two items in the area of general cognitive development, with schools own forms having only one. While 44% of the official forms ask for judgements of the child's special interests, strengths, or weakness, only 15% of the schools own forms do so, $P<0.05$. It may be that nursery teachers have a "tenderminded" view of the children in their care and they are unwilling to record global cognitive weaknesses for any child and this may explain the low incidence of this particular item. An item concerning general and social knowledge of family and people's behaviour (e.g. about families and occupations) is never found on schools own

Table 7.2: Content analyses in the area of communication, language, and speech

Percentage of records forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
General language development	44	33	87*
Can describe pictures or own present experience	44	41	32
Talks with adults	44	44	46
Talks with other children	44	41	23
Articulation is clear or there are no speech defects	41	63	64
Can describe past experience	33	15	50
Can predict future events	33	15	14
Can explain and reason	33	11	68*
Responds to instructions	30	37	55
Can express personal needs	30	11	59*
English is a second language	26	4*	2*
Suggests and asks questions	26	15	23
Uses grammatically complex speech	22	33	18
Uses language in expressive play	22	11	23
Can repeat rhymes, songs, and say own name,address	19	15	59*
Responds to questions	15	15	18
Vocabulary good	11	44*	23
Total number of inclusions	140	121	148
Average number of inclusions	5	5	7

Key for Tables 7.2-7.8

* = significant difference at $P<0.05$ level for the Z value (with cut-off point + or - 1.96). The LEA official records are compared with a) schools own records, and b) experimental group records.

Table 7.3: Content analysis in the area of general cognitive development (including attitudes to learning)

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
General intellectual attributes e.g. "readiness for formal learning", shows interest in learning	48	26	50
Concentrates and persists	44	41	82*
Special interests, strengths, or weaknesses	44	15*	77*
Is creative, takes part in imaginative activities	26	26	55*
Has social knowledge of family and people's behaviour	15	0*	9
Solves problems	7	4	9
Total number of inclusions	50	30	62
Average number of inclusions	2	1	3

records although it is included on 15% of official records, $P<0.05$. Teaching children about social knowledge is recent and a consequence of new research in this area (see Shields, 1986).

Both official and schools own forms have an average of two items in the area of pre-maths skills (Table 7.4). Matching, using 1:1 correspondence, is a skill more often asked about on official forms (37% compared with 7%, $P<0.05$). Perhaps the teachers in the nurseries are less aware of Piagetian theory and the need for children to match objects as a precursor to understanding number, than are their advisers. The capacity to sort and classify is more frequently included than any other pre-maths item and even more so in the case of schools own records (78% compared with 44%, $P<0.05$). Perhaps the naming that is involved in classification activities is related to nursery teachers' emphasis on vocabulary skills (which is mentioned on 44% of schools own forms, as Table 7.2 shows).

Table 7.5 shows an average of two items, on both official and schools own forms, which relate to the area of pre-reading skills. There are no significant differences between the groups in this area. However, there is a trend for schools own records to be more likely to request information about the children's capacities of aural discrimination (41% compared with 19%). This trend may be explained by the possibility that advisers may wish to focus

Table 7.4: Content analysis in the area of pre-maths skills

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
General classification skills, i.e. can sort by colour, shape, other attributes	44	78*	96*
Can match using 1:1 correspondence	37	7*	32
Seriation; can order by size, capacity, volume	26	19	68*
Can count	19	30	55*
Can compare sets	19	11	23
General numeracy, e.g. understands the conservation of number	19	15	41
General use of mathematical language	15	11	36
Can recognise, or use number symbols	15	19	14
Time: can put events into sequences; can compare different times e.g. night and day	15	11	23
Space: can describe position of self and objects	11	19	41*
Can combine sets	7	0	0
Total number of inclusions	61	59	94
Average number of inclusions	2	2	4

Table 7.5: Content analysis in the area of pre-reading skills

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
Listens attentively to adults, listens to stories	52	56	50
Memory: can recall items, can copy sequences, can summarise and complete stories	44	44	46
Visual discrimination: can match pictures and other items; can identify small visual differences	33	30	27
Looks at books with interest	30	41	59*
Can read own name and a few words of "own talk"; follows the orientation of print	26	11	14
Auditory discrimination: can recognise differences in sounds, rhymes, rhythms	19	41	14
Can read more than a few words	7	0	0
Participates in music activities	7	19	5
General pre-reading skills	4	0	46*
Total number of inclusions	60	65	57
Average number of inclusions	2	2	3

attention upon the children's capacity to listen attentively in general as they judge this as more important than the children's facility to respond to, sometimes boring and far removed from life, tests of discrete auditory discrimination skills. The theoretical basis upon which some of the most influential tests of psycholinguistic ability were based have now been overturned or called into question (Coles, 1978, Hammill and Larsen, 1974). Therefore, there is less theoretical foundation for turning attention to discrete auditory discrimination skills rather than to the child's capacity to listen attentively to things which interest him or her.

There is an average of three items to be found on both official and schools own records in the area of a child's social and emotional development (Table 7.6). There are no significant differences between groups on the frequency of inclusion of individual items in this area. Few of the schools own records (11%) and official forms (19%) include an item on the children's capacity to act in parallel to others. Perhaps this is because it is so usual, and at times essential, for children to act in parallel to one another that this item is not deemed worthy of recording. Parallel play has been defined negatively by Parten (1932, 1933) who suggests that children grow out of it into a more sophisticated style of being able to cooperate with others. Cooperation with other children and solitary play are two items which are mentioned on 33% of schools own records

Table 7.6: Content analysis in the area of social and emotional development

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
Relates well with adults, responds to reason	52	44	96*
Relates well with other children	52	44	77
Level of self esteem, has confidence, and independence	41	30	55
Cooperative with other children	30	33	64*
Is solitary	26	33	3*
General temperament displayed during play e.g. friendly, aggressive, noisy, quiet	26	44	14
Emotional states and behaviour e.g. is withdrawn, anxious, lethargic, hyperactive	22	30	41
General social and emotional development	19	4	64*
Plays in parallel to other children	19	11	32
Has settled at nursery and adapts to new situations	15	19	77*
Total number of inclusions	81	79	121
Average number of inclusions	3	3	6

whilst parallel play is mentioned on only 11% of these forms.

In the area of physical development and gross motor skills there is an average of two items for both official and schools own records (Table 7.7). There are no significant differences between the groups on any item. Amongst the more common items for both official and schools own records are medical information, and laterality. The justification for medical information about the child seems very sensible as it can enable nursery staff to be alert to particular needs of a child. There has been change over the last half century to previously held views that children should be forced to be right-handed. There may even be nursery staff who were themselves made to use the "wrong" hand when at school. Although the idea of using left or right hand and being ambidextrous are all more acceptable in the 1980's there still remains an item on laterality on many record forms. This may be because of the dyslexia literature which suggests that children without a firmly established hand, foot, and eye dominance by an early age may find it difficult to learn to read, although such a reason for an inability to learn to read well does not find favour with all reading researchers (see: Bryant and Bradley, 1985, for example).

The single area which has the second most items (after language and speech) is fine motor control and hand-eye

Table 7.7: Content analysis in the area of physical development and gross motor skills

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
General gross motor control e.g. clumsy or well coordinated	52	33	91*
Medical information about illness, or restrictions on activities, diet etc.	41	30	32
Sight, hearing defects	30	11	0*
Hand/foot/eye dominance	26	33	72*
Can climb, swing	22	37	50*
Can walk and run easily	19	19	50*
Can jump, hop, skip	15	19	64*
Can throw, catch, kick balls etc.	11	22	9
Can ride a tricycle	11	11	0
Can stand and balance well	7	19	18
Can lift and push and pull objects, including wheeled toys	7	7	0
Total number of inclusions	65	65	81
Average number of inclusions	2	2	4

coordination (Table 7.8). The official forms have three items on average and the schools own have four. As with physical development and gross motor control, a general category of manipulative skills occurs more often with official forms than with schools own (in 59% of cases compared with 30%, $P<0.05$). Again, this could be because of the adviser-designers not wishing to be over prescriptive, i.e. telling teachers which particular detailed items to look out for when assessing manipulative skills. Another possibility is that there can be a very great range of catchment areas for nurseries within a single LEA and items which may be relevant to the needs and interests of children in one area may not suit more advantaged children, for example, in another area. This latter reason may explain why the skill to write own name is on 22% of schools own forms but only 4% of official ones, $P<0.05$. The schools own records more often than official forms have items on drawing, painting, or colouring (56% compared with 22%, $P<0.05$). Similarly, using scissors appears on 48% of schools own records, but only 22% of official records, $P<0.05$.

The designers of LEA official records, mostly advisers, usually possess a great breadth and depth of experience; they are also more likely to be aware of recent research. Teachers in the classroom, designing schools own records, tend to be more interested in discrete skills such as the fine motor ones, vocabulary, and counting rather than the incorporation of such items into assessments of higher order

Table 7.8: Content analysis in the area of fine motor control and hand-eye coordination

Percentage of record forms which included each item	In LEA official records	In LEA schools own records	In expt. group records
General manipulative skills	59	30*	77
Uses bricks and construction materials such as Lego	37	37	73*
Can manage at toilet	30	33	50
Can dress self	30	56	59*
Uses pencils, pens, chalk, crayons, glue, paint	26	44	82*
Does jigsaws	22	37	72*
Can draw, paint, colour in outlines	22	56*	32
Can use scissors	22	48*	77*
Uses malleable and fluid play materials: dough, clay, water, sand etc.	19	22	5
Can trace or overwrite	15	11	14
Can copy letters and shapes	15	19	23
Does writing patterns	11	7	0
Can wash and dry hands	7	7	9
Can write own name	4	22*	41*
Total number of inclusions	86	116	131
Average number of inclusions	3	4	6

psychological functioning.

b) The experimental group records contrasted with LEA official records

Before the experimental group of records is examined in relation to the official records, there will be a brief look at the summary page of results which include those of the schools own records (Table 7.1). It is notable that the experimental group of record forms contain more items, on average 32 compared with 20 for the LEA official and schools own records. This confirms the findings of Chapters 5-6 that change took place in the intervention classrooms and affected the records of individual nurseries. The experimental group records give most items to language but proportionally fewer to general cognitive development, pre-reading, pre-maths, and physical development, as do the other groups. Social and emotional development and fine motor skills have second most items after language development across all groups. The pattern between record areas is identical for the experimental group and LEA official and schools own records.

The paragraph above looked at the experimental records in relation to both schools own and the official records, but the rest of this section will contrast the experimental records with the official records. This particular contrast is being made, rather than schools own with experimental, because the in-service intervention introduced the

experimental nurseries to packages of materials which included LEA official records. The systems which the nurseries developed were in many cases based on LEA official systems. The experimental nurseries also had access to a large quantity of resources which would not usually be available to individual teachers developing schools own systems. Therefore, the research question to be addressed here is to what extent and in which domains do the experimental group records differ from the LEA official ones. (The similarities and differences between all three groups is another question which is tackled in section c) of this chapter which is concerned with the balance of record-keeping items.)

Table 7.2 shows an item on general language development occurs more frequently for the experimental group ($P<0.05$). The explanation for this may be that the micro possesses a wordprocessing facility which can be used when writing elaborations of simple prompts. The experimental participants were encouraged to use such a facility and the prompt "language development" is an item under which participants could wordprocesss their free comments about individual children's skills in this area.

The functional classroom staff in the experimental group include three other language and speech items more frequently than do the LEA official record designers: the child can explain and reason ($P<0.05$), express personal

needs ($P<0.05$), and repeat rhymes and songs and name and address ($P<0.05$). The experimental group are less likely to include an item on the children needing to learn English as a second language ($P<0.05$). Whilst the official LEA records have an average of five inclusions in the area of language and speech development the experimental records have seven.

Table 7.3 shows the experimental group records have more items on cognitive development with more: concentration and persistence ($P<0.05$), creative participation in imaginative activities ($P<0.05$), and special interests, strengths and weaknesses ($P<0.05$).

As Table 7.4 shows, classification and sorting is mentioned more frequently by the experimental group ($P<0.05$). References to children's understanding of seriation and spatial relations are also more frequent for the experimental group (for both items $P<0.05$). This may be explained by the presentation of curriculum-related materials during the course of the project. Counting is another item in this area more frequently included by the experimental group ($P<0.05$).

More of the experimental group have a general item referring to pre-reading skills ($P<0.05$), possibly because it is a useful prompt for structuring a section of the micro-based record form. But, as is shown in Table 7.5, there is only one other difference in the area of pre-reading. The

experimental group are more likely to have an item on looking at books with interest ($P<0.05$).

Table 7.6 shows the item on general social and emotional development to be more common for the experimental group ($P<0.05$). As with the general language development and pre-reading items, this was found to be a useful structuring device for free comments about the children. A very popular item found in 96% of the experimental group is that of the child relating well with adults (this is also commonly found on the official group of records but it is even more frequently seen on the experimental group records, $P<0.05$). The other items which are more frequently included by the experimental group are skills of the children in settling and adapting, and being cooperative with other children (for both items $P<0.05$).

In the area of physical development and gross motor skills the experimental group more often include items on laterality, capacity to run and walk easily, and to jump, hop and skip, and to climb and swing (all four items $P<0.05$, Table 7.7). The item on general gross motor control (or something very similar) is used as a structured heading in 91% of the experimental group records and thus is significantly more likely an item compared with the official LEA records ($P<0.05$). None of the experimental group includes an item on sight or hearing defects and this is a significant difference ($P<0.05$) which may be related to the

decision of most participants to have separate files on children's medical information and social background, away from the computer.

The six significantly more common items ($P<0.05$) in the area of fine motor control and hand-eye coordination are the use of bricks and construction materials, doing jigsaws, using art materials, using scissors, being able to dress self, and writing own name (Table 7.8). There is more scope for detail in this area with an average of six items compared with three items for the official group.

c) The balance of record-keeping items across all three groups

The items which receive high priority in the language area for all groups (at an inclusion level of 40% or greater) are articulation and talking with adults (Table 7.9). Items on describing pictures or own present experience and talking with other children are clear priorities for schools own and official records. All these items are likely to be justified by practitioners as reflecting the language development work in which they engage and components which they are able to assess. It is interesting that some of the items that Joan Tough (1976) recommends do not receive high priority from these same groups, for example predicting future events, describing past experience, and explaining and reasoning do not reach 40% for schools own and official records. It appears that as well as having a broader spread

Table 7.9: Communication, language, and speech items included on at least 40% of records

Official	Schools own	Experimental
Articulation is clear or there are speech defects	Articulation is clear or there are speech defects	Articulation is clear or there are speech defects
Talks with adults	Talks with adults	Talks with adults
Talks with other children	Talks with other children	___
Can describe pictures or own present experience	Can describe pictures or own present experience	___
General language development	___	General language development
___	Vocabulary good	___
___	___	Can explain and reason
___	___	Can express personal needs
___	___	Can repeat rhymes, songs, and say own name, address
___	___	Responds to instructions
___	___	Can describe past experience

of items, in this area, the micro-based record formats offer a balanced spread of items which include explaining and reasoning, expressing personal needs, being able to describe past experience. They also frequently include an item on the child's capacity to repeat rhymes, songs, and say own name and address. In these respects the micro-based records are an improvement on the schools own and official ones.

The most popular item in the cognitive development area, for all groups, relates to the children's concentration and persistence (Table 7.10). This is a tradional accomplishment which both advisers and nursery staff are keen to foster in children and to monitor. The child's problem solving skills are included very infrequently on all forms, however. This may be because it is low on the curricular agenda or it is thought to be too difficult to assess. Being creative and taking part in imaginative activities is an item which appears in more than 40% of cases of micro-based records, but not at such a high level for schools own and official records. This suggests it may be a "forgotten" item or there is some perceived difficulty in assessment. The coverage of items by the experimental group is very much like the coverage of the official group of records in this area of cognitive development, i.e. there is more detail than for the schools own records.

The most frequently included item on all three types of record relates to the children's sorting and classification

Table 7.10: General cognitive development items included on at least 40% of records

Official	Schools own	Experimental
Concentrates and persists	Concentrates and persists	Concentrates and persists
Special interests, strengths or weaknesses	___	Special interests, strengths or weaknesses
General intellectual attributes e.g. "readiness for formal learning, shows interest in learning	___	General intellectual attributes e.g. "readiness for formal learning, shows interest in learning
___	___	Is creative, takes part in imaginative activities

skills (Table 7.11). This may be because it is the most commonly agreed area of the nursery curriculum and one which staff can monitor readily in relation to individual children. Surprisingly, the schools own and official records do not very often mention children's knowledge of space and time and understanding of number; this may be because some Piagetian notions about young children's learning have not been assimilated into the nursery tradition. As with the language area, the micro-based records show themselves to cover a broader range and to be likely to include a good spread of items from seriation, counting skills, and general numeracy to the child's developing capacity to describe spacial positions.

Listening attentively to adults and to stories and the memory to recall items, copy sequences, and summarise and complete stories are the two most commonly found items on all three types of record forms (Table 7.12). These items appear to make sense in that children who enjoy listening to stories and have some recollection of what the story was about have a head start on the path to reading (Clark, 1976). A frequently included item common to both schools own records and micro-based ones is the child's interest in looking at books. Such an item appears to be sensibly grounded in terms of what nursery staff believe to be helpful to young children in learning to read.
Pre-reading skills is a popular heading for free comments on the micro-based records. The items of being able to read

Table 7.11: Pre-maths items included on at least 40% of records

Official	Schools own	Experimental
General classification skills i.e. can sort by colour, shape, other attributes	General classification skills i.e. can sort by colour, shape, other attributes	General classification skills i.e. can sort by colour, shape, other attributes
—	—	Seriation: can order by size, capacity, volume
—	—	Can count
—	—	General numeracy e.g. understands the conservation of number
—	—	Space: can describe position of self and objects

Table 7.12: Pre-reading items included on at least 40% of records

Official	Schools own	Experimental
Listens attentively to adults, listens to stories	Listens attentively to adults, listens to stories	Listens attentively to adults, listens to stories
Memory: can recall items, can copy sequences, can summarise and complete stories	Memory: can recall items, can copy sequences, can summarise and complete stories	Memory: can recall items, can copy sequences, can summarise and complete stories
—	Looks at books with interest	Looks at books with interest
—	Auditory discrimination: can recognize differences in sounds, rhymes, rhythms	—
—	—	General pre-reading skills

more than a few words, auditory discrimination, and participation in music activities may not be frequently included by two or more groups for practical reasons. Reading more than a few words is not a common prompt on records for nursery children because children who can read are rare in the nursery, and traditionally nursery staff resist pressure from parents to teach formal reading skills. Reasons for not using an item on children's auditory skills has already been mentioned above. Another infrequent item is participation in music activities (participation in creative activities is also infrequent as Table 7.3 indicates). Perhaps this is because nursery staff and advisers consider it unnecessary to record the children's participation in activities which are prominent components of the curriculum.

The two items on the child's capacity to relate well with adults and with other children are found very frequently on all three types of form (Table 7.13). An item relating to levels of self esteem, confidence, and idependence appears frequently on both the official records and micro-based ones. Temperament is mentioned on schools own records and suggests judgements about a child's friendliness or aggression during play are of importance to the teachers. The LEA advisers and micro-based record project participants have not selected such an item so often but instead call for information about higher order attributes of self esteem, confidence, and independence.

Table 7.13: Social and emotional development items included on at least 40% of records

Official	Schools own	Experimental
Relates well with adults, responds to reason	Relates well with adults, responds to reason	Relates well with adults, responds to reason
Relates well with other children	Relates well with other children	Relates well with other children
Level of self esteem, has confidence, and independence	___	Level of self esteem, has confidence, and independence
___	General temperament displayed during play e.g. friendly, aggressive, noisy, quiet	___
___	___	Has settled at nursery and adapts to new situations
___	___	Cooperative with other children
___	___	General social and emotional development
___	___	Emotional states and behaviour e.g. is withdrawn, anxious, lethargic, hyperactive

The recording of children's social and emotional development could continue to be explored. Until now, emotional states of children have been considered on few of the schools own and official forms. This may be because of the difficulty in identifying withdrawn, anxious, lethargic, or hyperactive behaviour, for example. Alternatively, a description of emotional states may not feature on record forms because advisers and staff in nurseries do not wish to label the children as having particular behavioural characteristics which may be only temporary. The focus on record-keeping during the experimental intervention seemed to help staff change their attitudes and develop ideas which led them to include more items in this area. Frequent inclusions on micro-based records cover cooperation with other children and emotional states as well as a general heading to cope with freer comments about children's individual differences in this sphere. Settling at nursery is another common micro-based item which may have been omitted from schools own and official records because it is only relatively recently that research attention has focussed on the difficult transition for children from home to nursery or from playgroup to nursery class or school (Blatchford, Battle, and Mays, 1982). In general the most frequently selected micro-based items appear to be up to date and in keeping with modern nursery practice which is based on intuitive knowledge, research, and theories of child development.

The most frequent item for both the micro-based records and the official ones in the area of physical development concerns general gross motor control (Table 7.14). One reason for the frequency of this general item may be that the record designers do not wish to be over prescriptive as to the exact physical and coordination skills which should be monitored. The micro-based records have a wide range of frequently included items: from laterality to being able to jump, hop, skip, and swing and climb.

The one item common to both official forms and micro-based ones is general manipulative skills (Table 7.15). Again this is likely to have been selected for its usefulness when it is not possible to prescribe - or describe - every fine manipulative action a child may make. Among the frequent items for schools own and micro-based records are the skills to dress self, and to use of a variety of art materials including scissors. Doing writing patterns, and tracing or overwriting are relatively infrequent on all three types of record, perhaps because such activities are viewed as relatively minor and disjointed means of learning to employ symbolic representation and thus may be less likely to contribute to young children's desire to learn to write and draw, than was thought previously. The very large range of frequently mentioned items on micro-based records include managing at the toilet, using construction materials, doing jigsaws, and writing own name. There is still a need on even a generously-itemed micro-based record form to be

Table 7.14: Physical development and gross motor skills included on at least 40% of records

Official	Schools own	Experimental
General gross motor control e.g. clumsy or well coordinated	___	General gross motor control e.g. clumsy or well coordinated
Medical information about illness, or restrictions on activities, diet etc.	___	___
___	___	Hand/foot/eye dominance
___	___	Can jump, hop, skip
___	___	Can walk and run easily
___	___	Can climb, swing

Table 7.15: Fine motor control and hand-eye coordination item included on at least 40% of records

Official	Schools own	Experimental
General manipulative skills	___	General manipulative skills
___	Can dress self	Can dress self
___	Uses pencils, pens, chalk, crayons, glue, paint	Uses pencils, pens, chalk, crayons, glue, paint
___	Can use scissors	Can use scissors
___	Can draw, paint, colour in outlines	___
___	___	Uses bricks and construction materials such as Lego
___	___	Does jigsaws
___	___	Can manage at toilet
___	___	Can write own name

selective, i.e. choosing some items but rejecting others. It would be expecting an impossible amount from a single record form for it to describe and reflect all that nursery staff are doing or attempting to do for the children in their nursery.

Discussion

To sum up the balance of items from section c) it seems that the micro-based records are most different and most expansive in the realms of language, pre-maths, social and emotional development, and physical and gross and fine motor development. They appear to be much like conventional schools own and LEA official records with regard to inclusions in the areas of cognitive development and pre-reading skills.

It is not possible to say that the balance of items set out on record forms appear to be derived directly from any one child development theory or even a group of theories such as those from the developmentalists following in the footsteps of Piaget. This is because on one hand, theorists rarely prescribe for the practitioner quite how particular findings might be used in a curriculum or in the design of record forms, for example. On the other hand, theorists can be several steps behind the practioner in understanding what children can and cannot do. Take for example the case of the developmentalists who compiled a questionnaire for nursery staff to complete and then noted that one of their

questions was misconceived because "we thought that children would be talkative (etc.) or not, rather than ranging along two dimensions of talkative to teachers and talkative to children" (Hinde, Easton, and Meller, 1984). Practitioners already know this and thus are discriminating on record forms children's interactions with other children from their interactions with adults.

For an overview and analysis of "balance" the individual areas of development described in the coding system of Tables 7.2-7.8 will be merged into the three categories of cognitive and linguistic development, physical development, and social and emotional development. These three categories or domains have been commonly used elsewhere (Bloom, 1956, Krathwohl et al., 1964, Harrow, 1972, and Ashton, Kneen and Davies, 1975, for example). In considering the patterns of findings about record form content in the early to mid 1980's, there appears to be a distribution in favour of linguistic and cognitive skills (if pre-reading and pre-maths skills are counted here) with the next most common category concerning gross and fine motor development. Least often are there items concerning the affective domain of the child's social and emotional development.

It could be that language, general cognitive, and "school readiness" items are the easiest to specify and so are mentioned more frequently. A second possibility is that

projects on language skills (Tough, 1976) and pre-maths experience (Matthews and Matthews, 1978) and reports on the fostering of literacy and language (DES, 1975, for example) have made such a mark that the designers of record forms give emphasis to the cognitive and linguistic domain of children's development. There have been no recent major projects or publications which would help staff wishing to foster children's social and emotional development. There does appear to be scope for research and in-service work in this area.

This discussion will end with some general points about record-keeping which have been prompted by the data. Micros could help with repetitive aspects of records that consume a great deal of time. Although records are only one feature of nursery work, they do require an expenditure of time and effort, and so the amount of time allocated to the task of nursery record-keeping needs to be monitored. A nursery class with just three members of staff and 80 part-time places for children and an 80 item record form which they intend to update for every child monthly would find themselves with 6,400 items to check over and think about three times a term. In addition there may be a set of structured headings that the same nursery staff wish to use to describe in more detail aspects of the 80 children's development.

There does seem to be potential for micro-based records to

encourage the evolution of nursery records in a practical way that large print runs of official LEA records can not. (It is very easy to change the format of records on a micro.) Changing a record-keeping system for the sake of change is obviously not worthwhile, and changes need to be considered in relation to perceived benefits to the children. A change which magnifies the amount of work which staff need to do in order to become familiar with a new system has to be weighed against the time and attention the children might lose because of this.

Until a fully-fledged "expert system" is developed, decisions about the structure and balance of nursery records will be made away from the micro. (An example of an "expert system" of nursery record-keeping and curriculum management is given in Chapter 8, to demonstrate what is meant by this.) With a simple system of micro-based records amplification of items and full definitions or criteria for them can still be stored on the micro and read through when staff require reminders of what they mean by particular items. They can also edit such reminders on the micro. Alternatively, the micro-based records can be made deliberately clear cut with tightly phrased items. There is no requirement, however, that micro-based records should be of any special type, quality or length. Micro-based records can be a series of prompts in the form of structured headings rather than precisely-specified questions about areas of child development if this is what the nursery staff

require. Alternatively, micro-based records can comprise a combination of structured headings for free comments and specific questions for yes/no or gradations of answers.

Now that the content of the micro-based records has been presented and compared with LEA official and schools own records, other aspects of the micro-based experimental intervention may be considered. Whereas Chapters 5-6 are concerned with the functional classroom responses to the intervention, Chapter 8 deals with individual participant contributions and responses to the project.

8. A STUDY OF INDIVIDUAL PARTICIPANT CONTRIBUTIONS TO THE ISSUES RAISED DURING THE EXPERIMENTAL INTERVENTION

Introduction

The individual participant contributions are used in this chapter as another way of testing the success of the experiment. It is conceivable that at least a few individual participants' responses and views were swallowed up and lost when the unit of analysis was taken to be the functional classroom. The positive and enthusiastic contributions to the project made by one nursery assistant, for example, were cancelled out in relation to outcomes because the nursery teacher she worked with was vehemently against the concept of micro-based records. This is an extreme case but milder versions of the same story occurred. It is therefore the aim of this chapter to present the comments and ideas of the participating individuals after the completion of interval 1. An additional point is that the project was presented to potential participants as a means of collecting their contributions to the development of micro-based record-keeping. Their consent was obtained partly because they thought their individual contributions would be valued.

Method

The research decision was to obtain from all the participants their attitudes and ideas about the issues relating to a) the use of a micro in the nursery, and

b) record-keeping. This information was collected as a component of the intervention itself.

Individual participants (N=104) responded to informal interviews and by ticks and written comments on the structured questionnaire, "Appraisal" (see the set of research instruments in the Appendix). The questionnaire was given to participants on the last day of interval 1 with instructions to complete it on their own as soon as possible and to post it back to the researcher. The Appraisal questions were designed to obtain tick-box data about individuals' speed and ease of learning to operate the micro and its database and wordprocessing programs. Open ended prompts were also provided for the participants to comment further on the micro system and its programs.

Another of the questionnaire tasks was to put into rank order ways of learning to use the micro. Additionally, an open ended question was asked about how nursery and infant school staff should be trained to use micros. There were tick-box questions about the future usefulness of the micro and its programs in the participants' own nurseries, and how widely might micros be used in other nurseries. Participants were also asked with whether nursery children would use micros in the future and how much they might benfit from this. Finally there were open ended prompts for comments about record-keeping and curriculum related issues. The Appraisal response rate of 95% is high.

Results

a) The use of the micro in the nursery

The system which the nursery staff were taught to use during the intervention was quite complex. Participants needed to learn to load from disks the particular program they wanted to use (database or wordprocessor), to examine files which they had written previously and to start new ones, to enter information and to correct it, and to save information in the form of their choice. With the database program they could obtain listings of what individual children could do and have coloured block graphs displaying development. They could also have listed the names of children who had achieved particular items and see graphs of the progress of a whole group. With the wordprocessing program, the participants could use text moving and substituting features as well as being able to expand their notes about a child to whatever length they wished, wherever was appropriate in the record, rather than just at the end, which can be a constraint with handwritten or conventionally typed records. They normally used the wordprocessing program in a structured way with a set of headings under which they would write notes about individual children. With the database program the participants were encouraged to answer the items about each child with "yes", "no" or "sometimes" answers and to annotate these answers with brief notes when needed. They could have whatever and however many items they wanted to use with the database and any headings they chose with the wordprocessor.

The first general finding was that individuals did tend to feed back both their experience of the intervention as well as their prior knowledge and attitudes.

Table 8.1 shows that by their own reports most of the participants learned to use the micro quickly and found it easy to use. This confirms the analysis by functional classroom (in Chapters 5-6) that some degree of success was achieved in every case where the demanding list of experimental activities was attempted during interval 1. Nineteen per cent found they were slow to learn to use the wordprocessing aspect of the system and 17% found it difficult; however, even fewer (10%) were slow to learn to use the database program and found it difficult to use. Therefore the cases of functional classrooms with "lesser success" were not likely to have been caused by difficulties with using the micro.

Eighteen individuals wrote positive comments about the micro system and only eleven were more negative. One positive statement with a built-in reservation is: "This would be useful once routine use has been established, assuming we had the money to buy it!". Another is: "I think this is a very good system for storing records and I daresay in the future it would be made more compact to fit on a table top". Other criticisms cover technical difficulties and problems of making a judgement after only a limited time with the micro. One person knew pencil and paper to be effective and

Table 8.1: Individual participant responses to questions about their own use of the micro (percentages)

	Very quickly (first go)	Quite quickly (by the end of the week)	Slowly (still uncertain)
How quickly did you learn to use the micro?	41	51	8
How quickly did you learn to use the wordprocessing program?	13	68	19
How quickly did you learn to use the database program?	22	68	10

	Very easy	Quite easy	Difficult
How easy was it to operate the micro on your own?	42	52	6
How easy was it to operate the wordprocessing program?	14	70	17
How easy was it to operate the database program?	18	72	10

Note: the number of respondents for Tables 8.1-8.3 is 99.

proven whilst the long-term advantages of the micro could only be imagined. Two people considered that any initial enthusiasm they had might wane with the intrusion of all the practical constraints of the nursery setting. More favourable comments included the idea that the micro could help in noting child observations generally, and in curriculum planning and planning for individual children's needs.

Fourteen people wrote comments which were particularly in favour of the database package whilst six had reservations about checklists and hence about checklist packages. A positive comment was "very good and quick for checklists - time saving factor vital". The point was also made that staff still had a lot to do in order to set up their database system: "needs a good deal of time and background to get the right questions to do justice to individual children".

There was some division of thought with regard to the wordprocessor, with eight positive comments and nine more negative ones. This may be because the wordprocessor is more difficult to use in that it requires a greater knowledge of the layout of a typewriter keyboard and non-typists are in many cases painfully slow to find the letters they want on the keyboard. One participant said: "I think as I got used to using it, i.e. quicker, I would find it very useful". Another was already able to see advantages

of a wordprocessing package: "very good for child observations, recording progress from entering to leaving nursery. Good for topic work - expanding, adapting, flexibility". There were difficulties for some people in that they would need to use spectacles for reading the print of the operating instructions and then to remove them in order to see the monitor and the keyboard. It was particularly awkward for such nursery staff when they mislaid their spectacles or left them at home during interval 1.

More respondents wrote comments about future training of staff to use the micro than about any other topic on the Appraisal questionnaire. Sixty of the ninety respondents to the prompt wanted future training of nursery staff to be set further away from the demands of the children, not necessarily outside the nursery but during times when the pressures were less intense. A small proportion of people viewed the complexities of learning how to use the new technology as so great that they wanted long full-time courses, whilst others made suggestions about the nature and timing of short part-time courses. Whilst full-time courses away from the nursery were beyond the project resources, the aim of the researcher had been in fact to give as much time as possible to helping the individual participants use the micro. The method employed was a repeated cycle of (1) demonstrating, (2) letting the participant have a try, but offering lots of individualized support, (3) talking through

the instruction sheets, annotating them for the particular nursery's system, (4) provision of further guidance, (5) encouraging the participant to use the micro entirely on own. The participants appeared to agree that this was a good way to teach them. When invited to rank some good ways of learning to use the micro there was a great deal of consensus and the order that resulted was:

1) being shown;
2) having the opportunity to practice on own;
3) having a good set of instructions to follow.

One of the techniques used to help participants to become familiar with the micro and the concepts of loading, editing, and saving information was to offer them commercially-written games to look at and try out. However, it was found that only a very small proportion of individuals showed enthusiasm for the micro as a games device for adults. Whilst members of staff were usually more than willing to try out the work-oriented record-keeping packages on the micro, they were much less interested in the games programs which incuded a number of "adventure" games whereby the players are expected to find clues and solve puzzles in order to get through a variety of mazes and trails to collect treasure, for example.

The 24 individuals who responded to the Appraisal prompt for ideas and preferences about the display of information about the children usually raised the points which they had

discussed during interval 1. One sums up the points she noticed: "graph info. very good for overall response to particular items; it helps spot weaknesses/good points in the curriculum easily. Can be used as a check for specific topic work if required/desired. Use of graph read-out also to see weak spots in particular child and therefore gear the curriculum accordingly". The four people, who had mentioned during the experiment that they would be cautious about storing or displaying anything via the micro, repeated this on their Appraisal forms. One, for example, was very concerned about security and anonymity so made a practical suggestion about displaying information: "this should be done using a key so that information could not be given to someone who should not have access to the micro. The key could be either a number or a letter etc.". The majority of people were keen on the idea that the micro could help them write synopses and with ease produce a variety of coloured graphs or charts and myriad listings of children according to constructs that they themselves decided were valid. They usually were no more concerned about the security of micro records than of their ordinary records, such as the register of children's attendance.

After using the micro, most participants (88%) judged that if it was kept by them permanently it would be at least quite useful and 85% thought this of the wordprocessing program and 84% with respect to the database program (Table 8.2). Fifty-six per cent considered that micro-based

Table 8.2: Individual participant conjectures about the future use of micros in nurseries (percentages)

	Very useful	Quite useful	Not useful at all
If the micro was in your nursery for a long period of time would it be?	18	70	11
More specifically, would the wordprocessing program be?	15	70	14
Would the database program be?	20	64	15

In the future do you think the micro will be used for record-keeping?

In all nurseries	17
In some nurseries	39
In very few nurseries	45

record-keeping will be found in at least some nurseries in the future.

Table 8.3 shows that 33% of respondents thought nursery children would use micros quite often or very often in the future, whilst 67% considered such use would be occasional. Thirty-seven per cent thought children's own use of the micro would contribute quite a lot or very much to their development; 63% thought it would contribute only a little. Twenty-eight respondents made thoughtful written comments in favour of the micro being used as a picture-making device by nursery children themselves. (Such a device was used by the children during interval 1 in order to demonstrate its possibilities to the adult participants.) There were eleven negative comments or reservations, for example: "great fun, but only of limited use with our age group - could be extended with older children". Another person was cautious about extending the use of micros to under fives: "I feel we should concentrate on real life experiences for nursery children". Examples of positive points are that micros help "appreciation of pattern/abstract, and negative/positive images etc." and that they provide "excellent experience for young children as they will be living with computers". There were provisos that the quality of programs should be high if micros are to be used to help young children's learning. Staff revealed during informal interviews that they were mostly in favour of the concept of simulation and display programs for young children to watch and discuss in

Table 8.3: Individual participant conjectures about the future use of micros by nursery children themselves (percentages)

In the future do you think micros will be something for nursery children to use?

Very often	9
Quite often	24
Occasionally	67

How much would nursery children's own use of micros help their development?

Very much	6
Quite a lot	31
Only a little	63

the nursery. Such an application is much closer to existing use of television and video materials which nursery staff already consider to be acceptable. Interactive video systems are potentially much more powerful in the magnitude of material they could provide and the flexibility they could offer in their use.

b) Record-keeping

Participants' comments on record-keeping seemed generally to be in favour of monitoring children's progress (24 in favour whilst 6 were more negative with reservations). One participant viewed records as "essential, but time consuming, physically and organizationally". Another declared them to be "very important to ensure we are giving the children experiences that will help individual needs". Because of time expenditure, some participants declared a preference for checklists and required their own record-keeping systems to be brief and simple. Reservations included complaints that record-keeping "takes a great deal of time and observation". Several people thought records were for show only and were never useful. A few stated their fears that records could harm children (though their memory of the Maria Colwell case could surely not have been erased: in that case the lack of communication of records appeared to be a factor in the death of a child).

Few respondents to the written Appraisal measure raised objections to assessing children (20 were in favour whilst 5

had reservations). One who could not see any point in assessment declared "I do not believe it necessary to assess a child at this age". She seems to have eliminated the possibility of planning for the needs of individual children as result of systematic assessments. The safeguards recommended by those with reservations were that assessing should not encroach too much upon the traditional nursery day, that staff would need training to make assessments, that improved adult:staff ratios would be a prerequisite, and that crude labelling of children (from "special needs" to "average", for example) should be avoided. Some participants recommended that the adult assessed children whilst observing; and others suggested that the adult should join in play with familiar materials and listen to and question the child during this. There was concern about reliability: "I feel that it is important to bear in mind that all assessment is difficult in so far as the child may not be responding to his potential due to a number of circumstances e.g. health, home".

The 19 participants who wrote down their ideas about observing children were in favour of it. This is not surprising as it is something that nursery staff always say they do. Few of the participants had been aware of structured methods of observing children prior to the intervention and or had previously known of the work of Sylva, Painter, and Roy (1980). However, part of the record-keeping resources offered to participants was

information about the latter. This stimulated discussion of new methods and means to make observations systematic. After the intervention one participant wrote, "target child observing is very good, and tape recordings too". Another person wrote "I think the target child method for observing would be an ideal method to use on the micro". (By "target child" they mean the Oxford system of Sylva et al., 1980.) The only constraints appeared to be time and that staff were not sufficiently well trained in observing skills. An occasionally mentioned issue during informal discussions was that observations might be too subjective and that interpretations should be tempered through team discussions. A few people thought that informal observations would be superior to pre-planned ones although they did not spell out on what grounds.

At the start of interval 1, most of the participants did not show much evidence of having analysed the pros, cons, and practicalities of making assessments or observations of children. However, their comments at the end of interval 1 suggest they had developed their knowledge and ideas. So this result is a cross validation of the point made by the functional classroom analysis that change did indeed occur during the experimental intervention and interest was expressed in the record-keeping and curriculum components of the project.

It can be mentioned here that the major function of records

changed during interval 1 and, as a result of the intervention, the major purpose of records came to be working documents. The majority of participants agreed that there was value in keeping records for the benefit of children whilst they were still in the nursery and the staff could actually use the records as an aid to their working with the children. However, at the end of the intervention (interval 3) records reverted to being mainly for transfer.

Twenty-nine Appraisal respondents were unanimous in wanting to pass information onto the infant school; just one person was clearly opposed. The means of transferring such information were unresolved, however. Some thought verbal discussions with infant teachers to be essential. One person explained the timing that suited her own nursery unit attached to a single primary school: "records I feel should go on to the school and after the reception teacher has read them and met the children, I think the infant staff should discuss each child with the nursery teacher". Others debated as to whether full versions or carefully vetted synopses should be sent to the infant school. In several cases participants favoured the complete child's record being given to parents and letting parents decide whether or not to pass these to the infant school.

When it came to views about sharing information about a child with parents, 28 people appeared to be generally in favour whilst 6 others noted their reservations; for

example, as parents vary in their levels of understanding they should be protected from seeing records. One person stated "I think a lot of parents would be horrified to know that information, however harmless, is being kept on their child on a micro". Such a point needs open discussion with parents and staff before a long term project to implement micro-based records in nurseries takes place. A suggestion by a few people was that a "parents' version" of records be written. However, this is likely to be a detrimental move and one that could damage the openness of carefully developed relationships between parents and school. The LEA's which have already adopted a policy of open records explicitly oppose dual records being kept. The everyday practice of sharing information about a child's development with parents may be summed up by the description from one participant: "I think a personal approach by one of the staff with a friendly, casual chat is by far the best way".

One of the curriculum-related issues raised as part of the project procedures was in what ways could children's individual needs and interests be catered for. Twenty people wrote comments in support of maximizing children's potential by all the means available whilst six had reservations or resignedly wrote that this was not possible because time and resources would never allow it, for example "not very easy with poor adult-child ratios". Attempts to maximize children's potential was seen by several people as

that it could inhibit staff spontaneity. The more positive comments included the suggestion that the micro could help: "most useful would be a program to display rapidly the activities which would be of most help in making up deficiencies"; another person thought "the micro would be useful in planning a week's or day's activities. Particular children's needs could be noted".

Discussion

a) The use of the micro in the nursery

It was found that all participants could use the micro whatever their individual difficulties. To sum up the findings: staff were quick to learn to use the micro and they found it easy to use. They appreciated the visual displays of information and that either full versions of records or relevant sections could be printed out in a way that is time-saving. Half thought micros would be used in nurseries of the future. A third thought that nursery children would use micros and benefit from doing so.

What may be considered now are the details of the system and the method of introducing it which led to these outcomes. The researcher had spelt out the requirements for a database program which was specially written for the project. It included a data handling system which was flexible and designed to be easy to use. When the project commenced no such programs were commercially available although reasonable wordprocessing systems could be bought and one

was purchased to complement the database. In some respects the wordprocessing features were not as good as ones that are available in 1986, although the system was relatively simple to use and therefore more apposite to time limited fieldwork than many of the more complex systems now abounding. The hardware for the project is described in Chapter 5. The project was restricted to some extent by the point in time when it was set up but, despite this, presentation of the fundamental elements of record-keeping using the new technology was successfully achieved. Therefore, the responses of the participants to the system they used can be considered to have face validity and some degree of predictive validity with respect to how they would react to and appraise a system designed to take advantage of advances in technology in the late 80's and early 90's.

Although participants asked for future training in the use of the micro to be set away from classroom demands, it was deemed worth investigating the possibility of training during the flood of nursery activity, as financial resources for in-service work are so limited. It is conceivable that there are some elements of in-service work that can be integrated with the normal nursery day. Allocation of staff time in the nursery rarely appears to be appraised (Clift et al., 1980; and Birchall, Ferri, Gingell, and Gipps, 1981), yet the potential savings of time that could result from nursery staff conducting their own work study analyses could be very helpful. The present project did show that, with

encouragement, most nursery staff found quite a few hours of "extra" time in a week. This does not mean they would as a matter of routine be able to find such a large amount of time. It is likely that they sought time to participate in the intervention because they perceived it to be helpful to their own nursery work to study curriculum-related topics linked to record-keeping. Giving time to try out and use the micro-based system was for a different reason: to help with the research project.

As to the particular means of immersing staff in the concepts of micro-based record-keeping, there was general participant approval for the procedure adopted: demonstrations and opportunity to practice and refer to the operating instructions. It was interesting that staff were less than willing to consider games type programs as a reasonable learning method to help them get accustomed to the new technology. So lighter touches in training packages and use of jokes and games may wear a bit thin for some people and be unacceptable from the start for others. Staff appeared most willing to use the new technology when concentrating fully on working towards a micro-based record-keeping system that, even if it was not going to be used in the long-term in their own nursery, might be of benefit to staff and children in the future in other nurseries.

It was necessary for participants to surmise and conjecture

about how micros might be used widely by children in nurseries because when the project was timed there were few good micro-based learning packages for young children. Indeed there still appears to be a dearth of these (Moore, 1985). The package that was used in the project classrooms with large numbers of children was a pantograph device that an individual child could control in order to draw with different qualities of line and colour on a TV screen. Most participants were enthusiastic about such a device when they saw it in operation but it was much harder for them to imagine other items and simulation packages that as yet were unavailable. Electronic paint boxes, blackboards, and story books seem still elusive and are not fully developed or marketed for young children, so the project participants discussed these as part of the project remit but often reserved judgement. There is a need to investigate the possibilities of, for example, interactive video devices in the nursery and how staff may integretate these in their curriculum development work.

b) Record-keeping

Although more than half the participants were not engaged in keeping nursery records prior to the intervention this did not mean that they were necessarily opposed to record-keeping and lacked experience of any kind of records. They showed they were not averse to records by the active way in which they engaged in discussion of the topic and demonstrated interest in constructing a good record-keeping

system for their nursery.

There were several cases of opposition to making assessments of nursery children or observing them formally in case it damaged them or affected their play in the nursery. Individual opposition to records was sometimes on the grounds that writing things down about children should be avoided unless there is nursery agreement about what is written. There was pervasive amongst those who opposed records the idea that writing points down would exaggerate them in the minds of those who both wrote and read them. There thus were fears about distortion as well as occasional worries about accuracy. More than in the case studies of City and County (Chapter 4) the research method adopted for the experiment gave scope and encouragement for staff to discuss problems of accuracy and reliability of observations, assessments, and record-keeping as a whole. Individuals were prompted about these issues and responded in a concrete way by proposing solutions that would work for their nurseries.

Careful thought was given to the record-keeping items and structures which were examined during the intervention. It is shown in Chapter 7 that the micro-based records contain a good selection of items about child development. All the individuals involved in the keeping of micro-based record-keeping simulation sheets for a school term had a further opportunity to test out their developing ideas about

the keeping of records and the assessing and observing of children. Their reports were usually positive about the methods they adopted, and some participants were so interested in developing the best possible system for their nursery that they made further revisions at interval 3.

Whilst the function of records in the experimental intervention became working documents for the duration of intervals 1-2 this was not sustained at interval 3 although many individuals thought this should be their ideal. Nursery pressures interceded and are likely to mitigate against nursery record-keeping in the future. This seems to suggest that records should be compact and easy to keep if they are to be useful and kept sufficiently up to date for staff to refer to and use to benefit the children whilst still at nursery. However, the documents developed during interval 1-2 tended to be rather long, as Chapter 7 shows. Some compromise in the design of records is required to make records quicker to complete and every item recorded worthy of its salt. It appears to be a tendency of many individuals repeatedly to notice a novel item and add it to their repertoire rather than to criticize unnecessary or duplicated items and weed them out. Therefore, despite the researcher's suggestions to the contrary, many people tended to develop more and more complex systems of records.

A system of records suited to be working documents for use in the nursery is not at all likely to meet the needs of

either infant teachers with the pressures of many new entrants or parents who do not always appreciate the relevance of certain items or the educational shorthand. Open records for the use of parents are likely to become more widespread in future and a great deal of thought now could help make the change smoother. A streamlined system designed to operate with the help of the new technology could make all the functions of records easier to handle, providing the nursery staff have first clarified these functions.

It was surprising that some participants expressed reservations about the maximizing of children's potential. With accurate and regularly kept records, future planning for individual children can take place. Curriculum resources can reside in the same micro system as children's records and can be an "on tap" resource of up to the minute ideas for work in the classroom. Such a comprehensive resource need be no more restrictive than a set of text books and other printed materials, and would still require the discrimination of the classroom staff using such a record-keeping and curriculum package. It would be called by computer workers an "expert system". There follows a simulated case study.

The teacher of a class of 39 "morning children" types into her micro the phrase "morning" and the machine responds with a list of all the childrens' names. The teacher decides to have a display of the social and emotional progress of the

current term's "starters" so types "starters" into the micro and the screen clears and she sees a list of the eight new children and a block diagram with their social progress. The tall green blocks for three of the children show they have scored high on the observation schedules which one of her assistants completed the day before, and appear to have settled well and played in all of the main areas of the nursery. These three children do not yet seem to have developed any special interests or friendships so the pink and yellow columns are not blocked in at all.

Four of the other "starters" have not been observed formally as they still stay close to their parents when they come into the nursery and need a great deal of adult attention constantly. They all, unfortunately, have toileting problems and are rushed to the loo area at regular intervals by either mum, dad or one of the staff members. Such information does not need to be recorded as it is expected that these problems will sort themselves out. The large amount of adult attention that the children are being given means the formal observation schedule is unnecessary and can be delayed till the toileting difficulties are solved and the children need less adult attention.

The method of coping that this teacher is using is sheer experience but she has never had such a high proportion of new children with toileting needs. She decides to get extra help so types into the micro the phrase "special needs" and

from the resulting screen of prompts selects: "toilet problems" to get references to books she might read and the telephone number of the local health visitor support centre. (Later when this particular set of problems is solved she can send her own synopsis of "toileting resources" through the micro system to her colleagues and they can, if they choose, incorporate it into their own extensive and growing "special needs" sections of their micro-based files and perhaps decide to cross-reference it into their "health and early skills" files.)

The eighth child is quite "usual" in not yet having settled but more can be done to help him feel more settled at nursery. So the teacher types the child's name and adds "cognitive" for a display of his intellectual progress and needs. Many of the "sampled" items of pre-maths skills have been achieved by this child, as shown by a half filled orange column with the date of assessment just a week ago. The blue column for language is half full, also, but is dated three weeks ago. The white column for pre-reading is empty as the pre-reading activities in which the children in this particular nursery engage are of a somewhat social nature and this "starter" does not readily manage such activities. She decides to spend some time with this particular child in the book and interest corner to see which books and pictures he likes especially.

By typing "small group" the teacher next obtains a display

of the names of her 13 children for their special activity at mid morning, and by typing "cognitive" obtains a further display of their respective pre-maths and language skills. She is reminded that 10 of the children do not appear to have had very much experience of sorting, and explaining about why they have sorted groups. So she plans an activity in which they can put on funny clothes and sort themselves into groups with her help; she knows there will be lots of laughing with this activity so she will need to know if her nursery assistants can take their small groups outdoors or into the cloakroom area for their special activity time. She still had a few minutes before the first children of the morning arrive and decides to write her synopsis of the "early maths" dressing up game onto the micro before editing it later and sending it through the micro system to her colleagues to appraise.

Such systems of micro-based record-keeping closely linked with nursery curriculum development have yet to be established. Towards the establishment of such a system, a study was conducted of nursery staff attitudes to the new technology. This study is described now, in Chapter 9.

9. A SURVEY OF VIEWS AND SELF DESCRIPTIONS OF THE EXPERIMENTAL GROUP OF SUBJECTS AND A COMPARISON GROUP OF NURSERY STAFF

Introduction

It was originally hoped that a pre- and post-intervention design could be employed to assess the impact of the classroom experiment on staff attitudes to micro-based record-keeping and to technology in general. This initial plan was abandoned because a lengthy questionnaire administered prior to the researcher's arrival might have created resistance on the part of staff who were to be asked to participate in a project which would be exceptionally time-consuming for them. A post hoc control group was then considered. Responses from a comparison group to questions about technology and micro-based record-keeping could thus be compared with responses to the same questions made by staff who had participated in the micro experiment. A perfectly matched control group (on variables of age, qualifications, current position etc.) was beyond the resources of the researcher but a suitable post hoc comparison group was found and their general attitudes towards the new technology in the classroom were compared with staff who had experienced it first hand.

The first section of this chapter examines the similarities between the experimental group and the comparison group in terms of background, skills, and experience. The second

section investigates whether the experimental group's experience with micros affected general views and personal attitudes in relation to the new technology. This section also presents the views, attitudes, and experiences of the nursery staff as a whole which might affect their take up of the new technology. The final section examines differences between nursery teachers and nursery assistants. There are two data sets which are analysed by status: a) Tables 8-1-8.3 which present responses of individual staff members to the intervention experiment (from Chapter 8), and b) Tables 9.2-9.6 which present a comparison of responses of the experimental group subjects with another group of nursery staff.

Method

A survey instrument was designed which consisted of tick-boxes and an invitation to add notes of amplification where needed (see the Appendix for this "New Tech" intrument). The information which the questionnaire gathered was in the areas of personal and professional background details, e.g. age, qualifications, and experience. Respondents were also asked about their use of technological items at home and at school. There were questions about in-service course preferences and research funding choices. The respondents were asked in addition to consider how members of nursery staff, in general, would adapt to the use of micros and how it might affect them personally.

Sample and analysis

Two LEA's with similar under fives policies and catchment areas to those of the experimental LEA's were approached in order to create a comparison group. Before making comparisons the background details of the respondents in both groups were checked to see whether they were indeed similar. None of the comparision group had access to a classroom micro.

The comparison group subjects are the complete sample of two LEA's which had not participated in any other local-level studies which formed part of this research, but where the advisers, with responsibility for the early years of education, were willing that nursery staff could contribute to the study. Neither LEA had a standard system of nursery records. Exactly the same New Tech instrument was given to members of staff in the experimental group nurseries after their Appraisal questionnaires (see Chapter 8) had been completed and returned to the researcher. This distribution was arranged so that the experimental participants received the New Tech questionnaire four weeks after the end of interval 1. The questionnaire was distributed to the comparison group when half the experimental group had received theirs. Table 9.1 shows the number of people surveyed and the high response rates of 86% and 83% for the experimental group nursery teachers and assistants and 68% and 67% for the comparison group.

Table 9.1: Comparison group and experimental group samples and response rates

Number of members of staff invited to participate in the survey

	Nursery teachers/ headteachers	Nursery assistants
Comparison group	79	88
Experimental group	37	52

Percentages of members of staff responding to the "New Tech" questionnaire

	Nursery teachers/ headteachers	Nursery assistants
Comparison group	68	67
Experimental group	86	83

Note: for Tables 9.2-9.6, the actual numbers of respondents are 113 for the comparison group and 75 for the experimental group.

Because of the variation in the exact number of nursery teacher and nursery assistant replies, the mean for the different professions on every item has been taken and then made into a mean for the group. For example, on item 1 of the questionnaire the experimental group teacher scores were made into an average and the same was done to the scores of the assistants in the experimental group so that an average was calculated for those who participated in the micro experiment.

In Tables 9.5-9.6f), 9.7-9.9, and 9.13-914f), the two-tailed statistical tests are for chi squares. The contingency tables of 4 by 2 and 3 by 2 dimensions were collapsed when more than one expected value was less than 5. In Tables 9.6g) and 9.14g), the statistical tests are for Z values with $P<0.05$ when the Z value is greater than +1.96 or less than -1.96 for this two-tailed test. The tests of significance for Tables 9.13-9.14 are for the responses of the whole group of teachers (i.e. the comparison group and the experimental group combined) compared with the responses of the whole group of assistants (i.e. the comparison group and the experimental group combined).

Results

a) Background information about the subjects

Twenty-five per cent of staff in both comparison and experimental groups were aged 45 or over. But whereas 24% of the comparison group were under 25 there were only 13% of

the experimental group in this age group. However, overall there was no significant difference between groups on the basis of age.

Additionally there was no significant difference between the groups with regard to their qualifications and length of nursery experience. A slight variation between groups was that 30% of the people in the experimental group had worked in a nursery for a very long period of time (11 to over 30 years) compared with 19% of the comparison group. In one experimental classroom, for example, the number of years of staff (N=3) experience approached 90. Fifty-five per cent of the people in the comparison group had worked for only 1-5 years in a nursery whilst 36% of the experimental group had done the same. A similar perecentage of both the comparison and experimental groups (20% and 22% respectively) had never worked anywhere other than a nursery. (Work experience outside the nursery was defined here to exclude holiday jobs in student days or student placements.)

Both groups were similar in that 44% of the experimental group and 39% of the comparison group said they could use a typewriter keyboard only with difficulty or they had never used one before. It was thought relevant to a study about the introduction of micro-based record-keeping to ask about typing skills. The finding is one that could cause problems, however.

It was a potentially more positive finding that half the sample in both groups (48% and 45%) had close family members or friends using computers in their work. So it might be argued that half the nursery staff had a degree of preparation for the notion that they, too, might work with computers.

A high proportion of respondents in both groups (63% and 66%) claimed that they read and followed the instructions when a new electrical or mechanical item was bought for home use and, again, 62% of both groups said they would fix fuses and wire up new plugs themselves. There was no difference between groups as to the frequency with which they claimed to use a number of technological items at home.

The data about use of technological items in the nursery have been presented in rank order by degree of usage and as can be seen from Table 9.2 audio cassette and record-players were the most popular items for both groups and use of video cameras, Oracle/Ceefax/Prestel, and micros the most rare.

To sum up these results, the experimental group of subjects and the comparison group were sufficiently similar on a wide range of measures to suggest that the experimental group was not unusual in any way. Although the comparison group was not fully matched on a 1:1 basis to serve as a control group for the experiment, differences between groups may now be looked for because the similarities among the sample of

Table 9.2: Technological item used in the nursery (ranked according to frequency of use from 1 for most often to 12 for least often)

	Compar. group	Experimental group
Audio cassette recorder	1	1
Record player	2	2
TV	3	4
Radio	4	3
Slide/film projector	5	6
Typewriter	6	5
Photographic/cine camera	7	8
Calculator	8	7
Video recorder	9	8
Video camera	10	11
Ceefax/Oracle/Prestel	11	12
Microcomputer	12	10

Table 9.3: In-service course preferences (in rank order from 1 for the highest preference to 7 for the lowest preference)

Art/craft	1	1
Working with parents	2	4
Science	3	3
Record-keeping	4	6
Roles of staff in the nursery	5	5
Music	6	2
Use of micros in the nursery	7	7

those who used the micro for record-keeping and those who did not is great.

b) The attitudes and views of the experimental group and the comparison group

As might have been expected from groups of LEA's with different levels of in-service provision and different current emphases on particular topics, the two groups were found to have different preferences for courses. However, a course on the use of micros in the nursery was lowest on the list for both groups (Table 9.3). Music was lower on the list of preferences for the experimental group as also was working with parents and record-keeping.

The comparison and experimental groups differed very little with respect to their choices for allocation of research funds (Table 9.4). Both groups agreed that funds should go first to helping disadvantaged children in the nursery, language development of the under fives, and continuity in education. Again there was agreement as to what should be last on the list for project funding: developing new technological aids for the nursery and using a microcomputer for record-keeping in the nursery.

Respondents were asked to consider how staff would adapt to changes if the micro was introduced to the classroom. When asked to put into rank order characteristics which are important for such a change there was consensus as to the

Table 9.4: Research project funding choices (ranked according to popularity from 1 for the most popular to 7 for the least popular)

	Compar. group	Experimental group
Helping disadvantaged children in the nursery	1	1
Language development of the under fives	2	3
Training nursery staff	4	4
Multi cultural preschooling	5	6
Assessing and observing in the nursery	6	5
Continuity in early education	3	2
Developing new technological aids for the nursery	7	7

following order:

1) being open to new ideas;

2) familiarity with the typewriter keyboard;

3) technical/mechanical ability;

4) understanding maths/physics.

Table 9.5 shows the majority of people in both groups thought that it would be easy for most nursery workers to learn to use a micro for record-keeping, and that they would adapt easily to changes in routine that might be necessitated if micro-based record-keeping were introduced. A similarly high proportion of both groups thought staff would be willing to work outside their set hours often or sometimes if micro-based record-keeping was introduced.

The respondents were also asked about their personal attitudes towards micro-based record-keeping and how it might affect them. Both groups were likely to think that micro-based record-keeping would increase their hours in the nursery (89% and 77%, Table 9.6). A minority of the comparison group (41%) thought the introduction of the new technology would increase their status and 31% of the experimental group thought the same. There was a slight difference between groups in that 50% of the comparison group were willing to take more responsibilities at work compared with 32% of the experimental group, $P<0.05$. Similar proportions of both groups were willing to adapt their work routines a great deal: 39% and 36%.

Table 9.5: Views of how nursery staff would adapt if micros were introduced (percentages)

	Compar. group	Experimental group	
a) Most staff would find learning to use the micro			
Easy	64	73	
Difficult	36	29	
			ns
b) Most staff would find adapting to changes if micro-based record keeping introduced			
Easy	64	59	
Difficult	36	41	
			ns
c) If micro-based record-keeping was introduced most staff would be willing to work outside set hours			
Often	10	4	
Sometimes	71	66	
Rarely	16	25	
Never	4	6	
			ns

Note: in Tables 9.5-9.6f), 9.7-9.9, and 9.13-9.14f) the statistical tests are for chi squares. The contingency tables of 4 by 2 and 3 by 2 dimensions were collapsed when more than one expected value was less than 5.

Table 9.6: Personal attitudes related to micro-based record-keeping being introduced (percentages)

	Compar. group	Experimental group	
a) The micro would increase (my) hours in the nursery			
A great deal	17	23	
Slightly	60	66	
Not at all	23	11	
			ns
b) The new technology would increase (my) professional status			
Greatly	10	6	
Slightly	31	25	
Not change it at all	58	68	
			ns
c) In the development of (my) work (I) would like			
More responsibi -lities	50	32	
The same amount or fewer	50	67	
			P<0.05
d) In the future (I) would be willing to adapt (my) work routines			
A great deal	39	36	
A little or not at all	60	63	
			ns

Table 9.6: continued

	Compar. group	Experimental group	
e) The extent to which (I) would like to learn about how micros may be used in the nursery:			
A great deal	36	25	
A little	58	66	
Not at all	6	8	
			ns
f) (I) would like to learn a programming language to write (my) own programs:			
Yes	33	32	
Possibly	55	45	
No	11	23	
			ns

Table 9.6 continued

	Compar. group	Experimental group	
g) (I) have already thought about the following uses for micros:			
Record-keeping	64	86	*
Learning games for children	49	51	
Making lists of children	44	67	*
Stock-taking	36	34	
School accounts	29	32	
Timetabling	11	16	
Menu planning	4	7	

Note: for Table 9.6g) * = significant difference at $P<0.05$ level for the Z value of >1.96 or <-1.96

Only a low proportion of people wanted to learn a great deal about how micros may be used in the nursery (25% of the experimental group wanted to do this and 36% of the comparison group). Only a third of both groups was certain that they would like to learn to use a programming language.

The experimental group differed from the comparison group in that they were more likely to have thought about using micros for record-keeping (86% compared with 64%) and for making lists of children (67% compared with 44%), for both $P<0.05$.

Discussion

A clear difference between the two groups was that more of those who had participated in the experiment said they had given thought to uses for the micro in the classroom. Record-keeping and generating lists of groups of children were uses for the micro which the experimental group cited more often than the comparison group. This result is likely to be related to their recent experience of such uses for the micro. The New Tech survey responses of the experimental group showed that after their experience with the micro they had realistic expectations about the introduction of micro-based record-keeping and the demands that this might make on them. Despite their knowledge of such demands they expressed a willingness to adapt to changes in their working patterns.

The willingness of the comparison group to adapt to changes if this is required for the introduction of micros to nurseries may be because many of them wanted greater responsibilities in the development of their work. Because of this, they may have viewed the potential difficulty of adapting routines rather lightly and as an essential element of change.

The attitudes and views of the nursery staff as a whole, as found in this survey, are interesting in themselves. As each group is like the other on most demographic and context variables, the results may be merged together to give a generalizable picture of nursery staff attitudes towards the new technology in the early 1980's as well as their speculations about using micros in the nursery at some time in the future.

The use of micros in the nursery may have been very low on respondents' priorities for in-service training courses and for receiving research council funds but this does not necessarily mean that respondents were opposed to the notion. On a practical front, respondents considered it would be easy for staff to learn to use the micro and adapt to change. (This is in confirmation of the experimental subjects' reports about ease of using the micro, as reported in Chapter 8.) They were realistic in that they did not consider an understanding of maths/physics to be very important to their learning to use the micro and did not

think technical/mechanical abilities were particularly important for the task either.

There has been some research designed to test hypotheses about willingness to adapt to change in education settings in relation to staff attitudes (Benett, op. cit.). Such work recommends that the wider social climate be taken into account. Within a climate of financial cuts and the accompanying lowering of morale inside the state education system, staff still declared, according to the present survey, their willingness to work outside set hours for the sake of a change that might be triggered by the introduction of micro-based record-keeping.

Over a third of respondents indicated that they were adaptable in relation to work routines and willing to take on more responsibilities. Such a proportion of adaptable people willing to take responsibility is likely to facilitate the introduction of new technological items to nurseries. Another particularly noteworthy finding from this survey is that staff thought their colleagues would be willing to work outside their set hours for the sake of the introduction of micro-based record-keeping. This was despite consensus that the new technology could increase hours in the nursery without any certainty about concomitant increases in the status of the staff.

Nearly a third of the whole sample wanted to learn much more

than they knew already about the potential use of micros in the nursery. About half had close family or friends who used computers in their work and so they may have been primed to conceive of the possibility for themselves. Also the survey instrument was presented to all participants in a tone proposing micros in the nursery to be a real possibility for the future, and this may have contributed to a bias in the findings for the group as a whole.

The experimental group were no more likely than the comparison group to want to learn to program computers. This may be because they had learned from the experimental intervention that this should be unnecessary. Despite this, a third of the whole sample were determined to get to grips with programming and a further, even larger, proportion were undecided as to whether or not this might be a good thing. This keenness to learn to program on the part of some of the experimental subjects was probably for personal reasons, rather from any envisaged need for their work.

The whole sample appeared to be a thoughtful set of respondents who had reflected upon sensible uses for the micro in the nursery (i.e. they did not think of it for menu planning). They presented themselves as eager to learn more, and already in possession of a flexible approach towards change for themselves as well as declaring they expected the same from their colleagues.

To sum up, the nursery staff appeared well prepared for any changes that might occur as part of a move towards introducing new technology into their classrooms. The overall positive attitudes may be connected with the fact that four-fifths of respondents had work experience outside the nursery, i.e. they had already demonstrated a flexible approach to the work in which they were willing and able to engage. Also half of the whole sample had close friends or family with work experience of computers so to some extent they were prepared for the notion of micros in the work setting.

Results

c) The professional status of staff

In order to examine professional differences, there will be a description of nursery assistant participation in the intervention and an analysis by status of Tables 8.1-8.3 (the Appraisal responses of Chapter 8). This is followed by a study of responses, by status, to the New Tech survey.

i) The intervention experiment

Nursery assistants had at the start of the intervention helped with record-keeping in very few instances (eight nursery assistants only). So it was a very big change for many of them to become involved in record-keeping during intervals 1 and 2. At interval 3, it was again only a small number (eleven) who were involved in helping with records. However, the period during which the majority of nursery

assistants were involved with record-keeping provided a golden opportunity to appraise the feasibility of assistant help with records.

The sample of nursery teachers who responded to the Appraisal questionnaire and identified themselves is 32 and the sample of nursery assistants who did the same is 43. (This is not as high as the total response rate because some individuals wished to retain their anonymity as well as having the confidentiality which the reseacher offered them.)

It was an interesting finding that there was no difference between the two professional groups with respect to their self reports about their ease and speed in learning to use the micro and its wordprocessing program (Table 9.7), but slightly more of the assistants said they were very quick to learn to use the database program, $P<0.05$. When nursery assistants used the micro on their own at home they were just as successful as the teachers. The fieldnotes, made during the experiment, cross validated this finding that both nursery assistants and teachers could be successful with the micro and play an active part in the record-keeping components of the study.

Both groups ranked, in the same way, how novice nursery users could be best be taught to use the micro. They also agreed that micros and programs for record-keeping would be

Table 9.7: Nursery teacher and nursery assistant responses about their use of the micro during the intervention experiment (percentages)

	Very quickly (first go)	Quite quickly (by the end of the week)	Slowly (still uncertain)	
How quickly did you learn to use the micro?				
Nursery teachers	36	52	13	
Nursery assistants	44	51	5	
				ns
How quickly did you learn to use the wordprocessing program?				
Nursery teachers	13	74	13	
Nursery assistants	11	73	16	
				ns
How quickly did you learn to use the database program?				
Nursery teachers	10	80	10	
Nursery assistants	26	65	9	
				P<0.05

Note: for Tables 9.7-9.9 the number of nursery teachers is 32 and the number of nursery assistants is 43.

Table 9.7 continued

	Very easy	Quite easy	Difficult	
How easy was it to operate the micro on your own?				
Nursery teachers	45	45	10	
Nursery assistants	40	56	5	
				ns
How easy was it to operate the wordprocessing program?				
Nursery teachers	14	72	14	
Nursery assistants	11	77	11	
				ns
How easy was it to operate the database program?				
Nursery teachers	13	74	13	
Nursery assistants	18	76	7	
				ns

quite useful in the nursery. Table 9.8 illustrates the similarities between groups. There was one difference in that the nursery assistants were less likely than the teachers to believe that micros would be used for record-keeping in at least some nurseries, $P<0.01$.

Table 9.9 shows that the teachers and nursery assistants also thought somewhat differently about whether or not children would use micros in the future in nurseries. Seventeen per cent of nursery assistants thought nursery children would use micros often compared with 48% of teachers, $P<0.001$. There was no difference between groups as to the extent to which they thought micros would help children's development.

ii) The New Tech survey

As has been found in other studies (Clift et al., 1980; and Tyler, 1980a) nursery assistants tend to be younger than nursery teachers: 33% of nursery assistants in the present survey were under 25 but only 4% of nursery teachers. The age difference was significant ($P<0.01$); however, there were still 20% of nursery assistants who were aged 45 or more.

It was rare for nursery assistants to have qualifications as high as A levels: just 6% did, but 90% possessed NNEB certificates. Despite being younger, nursery assistants tended to have as long (or longer) experience of nursery work as teachers: 27% of nursery assistants had more than 10

Table 9.8: Conjectures of experimental intervention nursery teachers and nursery assistants about the future of micros in nurseries (percentages)

	Very useful	Quite useful	Not useful at all	
If the micro was in your nursery for a long period of time would it be?				
Nursery teachers	16	74	9	
Nursery assistants	19	72	9	
				ns
More specifically, would the wordprocessing program be?				
Nursery teachers	19	65	16	
Nursery assistants	16	77	7	
				ns
Would the database program be?				
Nursery teachers	26	58	16	
Nursery assistants	16	72	12	
				ns

In the future do you think the micro will be used for record-keeping?

	In all nurseries	In some nurseries	In very few nurseries	
Nursery teachers	22	44	33	
Nursery assistants	11	32	57	
				P<0.01

Table 9.9: Conjectures of intervention experiment nursery teachers and nursery assistants about the future of micros for use by nursery children themselves (percentages)

In the future do you think micros will be something for nursery chilren to use?

	Very often	Quite often	Occasionally
Nursery teachers	15	33	52
Nursery assistants	3	14	83
			P<0.001

How much would micros for nursery children themselves to use help their development?

	Very much	Quite a lot	Only a little
Nursery teachers	7	37	56
Nursery assistants	6	36	58
			ns

years experience compared with 22% of the teachers. In the experimental group, 36% of nursery assistants had worked for over 10 years in a nursery compared with 24% of nursery assistants in the comparison group. Eighty-one per cent of nursery teachers and 78% of nursery assistants responded that they had work experience outside the nursery. The work the assistants and teachers had done ranged from infant/junior school jobs (the most likely for the teachers) to secretarial/clerical work (the most likely for the nursery assistants).

There was no significant difference with regard to their skills although more of the nursery assistants (21%) said they could type with ease and touch type, for example, compared with the 8% of nursery teachers who said they could do this.

Forty-three per cent of nursery assistants had close family or friends who used computers at work compared with 51% of the nursery teachers, but this slight difference was not significant.

There was no difference between groups as to the frequency with which they used many technological items at home. Also the same high proportion of both nursery teachers and nursery assistants said they would read and follow intructions on their own when they bought a new electrical or mechanical item. But more nursery teachers said that

they fixed fuses and wired up new plugs at home (35% compared with 17%, $P<0.05$).

Apart from a slight difference of opinion about typewriters, the groups of nursery teachers and nursery assistants agreed with each others' verdicts as to how often technological items of equipment were used in the nursery (Table 9.10).

In-service course preferences did seem to be related to professional status and prior training of staff (Table 9.11). The higher-ranked priorities for the nursery assistants were art/craft, music, and the roles of staff in the nursery. They ranked in-service courses on record-keeping lower than did the teachers.

Table 9.12 shows the main difference is that fewer nursery assistants wanted research project funding given to assessing and observing in the nursery. However, the two groups were unanimous about their first three priorities: helping disadvantaged children, language development, and continuity. The nursery assistants were less inclined than the teachers to want funds given to using a microcomputer for record-keeping in the nursery. This is consistent with the Appraisal responses by status (in section c) i) above) when nursery assistants said micros are not likely to be used in many nurseries in the future.

There was no difference between groups with regard to

Table 9.10: Technological items used in the nursery (ranked according to frequency of use from 1 for most often to 12 for least often); analysis by status

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
Audio cassette recorder	1	1	1	1
Record-player	2	2	2	1
Radio	3	3	4	4
TV	4	4	3	3
Slide/film projector	5	5	5	6
Photographic/cine camera	6	8	8	10
Typewriter	7	6	6	5
Calculator	8	7	7	8
Video recorder	9	9	9	6
Video camera	10	11	10	11
Ceefax/Prestel/Oracle	10	11	12	12
Microcomputer	12	10	10	9

Table 9.11: In-service course preferences (in rank order from 1 for the highest to 7 for the lowest preference); analysis by status

Working with parents	1	2	2	3
Art/craft	2	3	1	1
Record-keeping	3	5	7	7
Music	4	3	3	2
Science	5	1	5	5
Roles of staff in the nursery	6	6	4	4
Use of micros in the nursery	7	7	6	6

Note: for Tables 9.10-9.14 the number of nursery assistant respondents is 103, and the number of nursery teacher respondents is 85.

Table 9.12: Research project funding choices (ranked according to popularity from 1 for the most popular to 7 for the least popular); analysis by status

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
Helping disadvantaged children in the nursery	1	1	1	1
Language development for the under-fives	2	3	2	2
Continuity in early education	3	2	3	2
Multi-cultural preschooling	4	7	5	5
Assessing and observing in the nursery	4	4	6	6
Training nursery staff	6	5	4	4
Developing new technological aids for the nursery	7	8	7	8
Using a microcomputer for record-keeping in the nursery	7	6	8	7

projected ease of staff learning to use the micro (Table 9.13). However, more nursery teachers in the experimental group thought it would be easy than did the nursery teachers in the comparison group (78% compared with 60%). More nursery assistants in the comparison group than in the experimental group of assistants thought that it would be easy for staff to adapt to changes in routine created by the introduction of micro-based record-keeping (71% compared with 55%). However, there was no difference between nursery assistants as a whole and nursery teachers on this measure.

The nursery assistants in 35% of cases thought that staff would be rarely or never willing to work outside their set hours with the onset of micro-based record-keeping, but only 15% of nursery teachers thought this, $p<0.01$.

With regard to personal attitudes, Table 9.14 shows that most nursery assistants and nursery teachers thought the introduction of micro-based record-keeping would increase their hours in the nursery slightly. In only 22% of cases the nursery assistants thought that the new technology would increase their status at least slightly, whilst 52% the teacher group thought this, $P<0.001$.

There was no difference by status with regard to the wish for more responsibilities at work, but only 30% of the experimental group nursery assistants wanted this compared with 55% of the comparison group assistants. In 46% of

Table 9.13: Views of how nursery staff would adapt if micros were introduced (percentages); analysis by status

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
a) Most staff would find learning to use the micro				
Easy	60	78	67	67
Difficult	39	22	33	33
				ns
b) Most staff would find adapting to changes if micro-based record-keeping introduced				
Easy	58	63	55	71
Difficult	43	38	45	29
				ns
c) If micro-based record-keeping introduced most staff would be willing to work outside set hours				
Often	13	6	6	2
Sometimes	72	78	71	54
Rarely	9	9	22	40
Never	5	6	2	5
				P<0.01

Note: the tests of significance for Tables 9.13-9.14 are for the responses of the whole group of teachers (i.e. comparison group and experimental group) compared with the responses of the whole group of assistants (i.e. comparison group and the experimental group combined).

Table 9.14: Personal attitudes related to micro-based record-keeping being introduced (percentages); analysis by status

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
a) The micro would increase (my) hours in the nursery				
A great deal	27	19	26	26
Slightly	56	71	61	62
Not at all	17	10	12	12
				ns
b) The new technology would increase (my) professional status				
Greatly	10	7	10	5
Slightly	45	42	18	10
Not change it at all	45	52	72	86
				P<0.001
c) In the development of (my) work (I) would like				
More responsib-ilities	48	36	55	30
The same amount or fewer	53	65	46	70
				ns
d) In the future (I) would be willing to adapt (my) work routines				
A great deal	45	47	35	23
A little or not at all	55	53	65	78
				P<0.05

Table 9.14 continued

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
e) The extent to which (I) would like to learn about how micros may be used in the nursery:				
A great deal	43	44	31	9
A little	52	53	63	79
Not at all	5	3	6	12
				P<0.01
f) (I) would like to learn a programming language to write my own programs:				
Yes	37	47	30	17
Possibly	52	41	60	50
No	12	13	10	33
				P<0.01

Table 9.14 continued

	Compar. group teachers	Expt. group teachers	Compar. group assts.	Expt. group assts.
g) (I) have already thought about the following uses for micros:				
Record-keeping	64	94	64	77
Learning games for children	53	53	44	49
Making lists of children	49	75	39	58
Stock-taking	36	44	35	23
School accounts	18	50	40	14
Timetabling	10	22	12	9
Menu planning	7	9	0	5

Note: no item has a significance level of $P<0.05$ for the Z value when comparing the whole group of nursery teachers and the whole group of nursery assistants.

cases the nursery teachers declared a willingness to adapt their work routines a great deal but only 29% of nursery assistants said the same, $P<0.05$. More teachers wanted to learn a great deal about how micros could be used in their nurseries (44% compared with 20%, $P<0.01$). The teachers also said more often than their assistants that they wanted to learn to use a programming language (42% compared with 24%, $P<0.01$).

There was no difference between groups as to whether or not they had thought about using micros for record-keeping, and the other uses listed in Table 9.14g).

Discussion

The younger age and lower educational qualifications of nursery assistants and their different expectations and roles in the nursery may be linked with their responses to the intervention experiment (Appraisal) and to the comparative survey (New Tech). The work interests of the nursery assistants appear to be somewhat different to those of their teacher-trained colleagues. Chapter 3 reported that few Authorities offer in-service training to nursery assistants in relation to record-keeping, and Chapter 4 amplified the finding that record-keeping is not usually a part of nursery assistant work. So the further finding, from this New Tech survey, that nursery assistants give a low priority to in-service courses on record-keeping adds further evidence about their exclusion from the task of

monitoring children's progress. Nursery assistants may view record-keeping as unimportant and not of benefit to children. A second possibility is that they possess little interest in written tasks such as record-keeping, and a third, perhaps related, possibility is that it is beyond the capabilities of some to do so. (A fifth of the experimental group of nursery assistants were found to be extremely reluctant to write any comments about children because they had limited writing skills and in some cases were acutely embarrassed by not being able to spell.)

The highest rankings on the nursery assistant lists of in-service courses they would like to attend were arts topics and the roles of staff in the nursery. Nursery assistants may regard themselves as very different from nursery teachers and promote such differences. The pronounced interest of many nursery assistants in the roles of staff in the nursery may be related to the active protests of some of them about being badly treated on account of their lower pay for what they see as a similar job to that of teachers. In some areas they organize local support groups and exclude the attendance of teachers, although the topics they discuss and the lectures they organize could be appreciated by both groups jointly. Sometimes the nursery assistant groups become sufficiently political to lobby for better pay and conditions.

The present study found that nursery assistants were even

less likely than teachers to want research funds spent on record-keeping related topics which corresponds to their low interest in attending courses on this. Generally, the nursery assistants were more likely than the teachers to think that staff would be unwilling to work outside set hours. Some teachers cross validated this finding by annotating their questionnaires with notes that nursery assistants were neither paid, nor willing, to work outside set hours. Also fewer nursery assistants than teachers said they would be willing to adapt their work routines a great deal. At home the nursery assistants were less likely than the teachers to fix fuses and wire up plugs; and at work they were less likely to want to learn how micros could be used in the nursery and to pick up programming skills. Although the nursery assistants were concerned about their role, four-fifths thought their status would not change at all with the introduction of the new technology. So the experience and attitudes of the nursery assistants were somewhat different to those of the nursery teachers.

To sum up the findings about status, the nursery assistants appeared to be less keen on record-keeping than were the teachers. Although the nursery assistants who participated in the experimental intervention were well able to use the micro easily they were unlikely to believe that micros would be used widely in nurseries. The New Tech data show the whole group of assistants were somewhat less keen to learn more about micros than were the teachers. Additionally, the

nursery assistants did not think staff would be willing to work outside set hours in order to accommodate change and fewer of them said they would be willing personally to adapt their work routine a great deal. And although concerned about their role in the nursery, they did not think micros would contribute to an improvement in their status. This suggests that there needs to be consideration of differences between nursery assistants and teachers when introducing items such as micros to nurseries. Courses of pre-service and in-service training of the future could either promote and maintain such differences or erode them. The findings in Chapter 5 are that role difference was a factor in achievement of experimental success. Those findings and the ones analysed in the present chapter suggest that status of nursery staff is a key issue which can be discussed further in Chapter 10, the final Discussion which follows.

10. DISCUSSION

This thesis has examined record-keeping practice in nurseries and considered the potential of the new technology to enhance record-keeping. The results of a study of under fives record-keeping in 125 LEA's (Chapter 3) demonstrate that record-keeping practices have expanded considerably, from the late 1970's onwards, when the assessment manuals for nursery teachers were first published (Bate and Smith, 1978; Tyler, 1980a). Nearly half the LEA's have some kind of standard (i.e. official) form which is used for their under fives. Although records vary from Authority to Authority, most standard records take the form of checklists or headings under which comments can be written. Most LEA standard records are supplemented by schools own records which individual nurseries develop. Content analyses of both schools own and standard types of records from LEA's are provided in Chapter 7.

The national survey revealed that the purposes for record-keeping vary slightly from nursery to infant school, with infant classes placing greater emphasis on transfer. It is a well-established, though a contentious fact, that many under fives are to be found in infant schools. This issue was not dealt with further, as all the other parts of the study are set within nursery schools and nursery classes. The major reason behind record-keeping is to plan for the needs of individual children. Additionally, records

are shown to be used mainly by teachers with little involvement of nursery assistants. What the survey of LEA advisers did not do was to look in detail at practice in individual nurseries.

For the second study (Chapter 4) nursery teachers, in two LEA's with standard records, described in some detail their record-keeping practices in 54 different nurseries. This was undertaken in order to complement the views of the LEA advisers who had responded to the first survey and to indicate patterns of practice within their Authorities. One of the LEA's was selected because it has a checklist form of standard records and the other because its standard record is of a headings format. Regardless of format, the purpose to which records are put is similar in both Authorities: planning for individual children and organizing staff teamwork. One Authority places special emphasis on transfer records, but neither uses records to any great extent for communicating with parents or outside professionals. Nursery assistants make a fairly large contribution to records in one of the LEA's; and staff in both Authorities tend to use schools own records which they have developed themselves, as an addition to the standard ones. The findings from this postal survey could not, of course, provide as much information as might be obtained from a school-based study whereby the issues and context relating to nursery record-keeping could be investigated further.

The third study took the form of an "experimental" intervention in 38 functional classrooms (the details of which, definition of terms and descriptions of procedures are given in Chapters 5, 6, and 8). Because of the potential help that micros may offer to the task of nursery record-keeping, this intervention experiment entailed members of staff in each functional classroom using a micro for an experimental period and exploring for themselves the possibilities for micro-based record-keeping. A set of predictor variables was analysed in relation to the experimental outcomes at three intervals, spread over more than a school term.

The most notable finding was that all the classrooms succeeded in completing the onerous tasks which were set out for them during the first week of the experiment. One school term later, 30 of the classrooms had maintained their micro-based record-keeping simulation sheets. Beyond this, 12 of the classrooms were making continued use of the project materials and resources. The keystone predictors of "success" (defined as four specific outcomes over time) appeared to be prior record-keeping, good quality curricula, long stay settings for children in the whole 3-5 age range, small nurseries, and clearly differentiated staff roles. This particular investigation did not examine any "process events" which may have occurred during the experiment.

In Chapter 6 there is an examination of "complete

experimental success" (defined as a single outcome) in relation to the occurrence of process events. Such process events covered the spheres of how the bulk of the circa-1980 micro equipment could be fitted into the school and transported around as necessary, how the staff involved themselves in the experiment and usually demonstrated positive attitudes towards it, the details of how the task of setting up a micro-based system proceeded and records were developed, and, finally, consideration was given to the outcome in relation to a variation in experimental treatment.

It was found that large amounts of time spent on micro-based record-keeping development, considerable change to the developing system, and a willingness to start afresh (but with a prior experience of records) all seemed to be associated with complete success. Staff friendliness towards the researcher, and staff agreement about the system of micro-based record-keeping adopted were also important. Complete success also appeared to be related to the setting-up of the micro in a place convenient for staff to use, and staff contributing some help to move it as necessary. The split-time variation in experimental treatment with its provision of extra resources additionally seemed to increase the likelihood of complete success.

In order to demonstrate the quality of record-keeping systems which were adopted and/or adapted for the

experimental study, content analyses of the micro-based record-keeping sheets from all 22 participating nurseries are provided in the fourth study (Chapter 7). These are presented in a format which enables them to be readily compared with the balance and spread of items contained in LEA standard records for under fives and a sample of schools own records. The micro-based record were found to be more comprehensive than the standard records and the sample of schools own.

The participants were encouraged during the intervention to question which items may or may not be included in their own record form and to consider the principles which may be applied generally when keeping records. What neither the study of process events nor predictor variables did was to describe the individual responses of the 104 participants in the experiment. There had been no examination as to whether or not individual responses, taken as a whole, would cross validate the experimental findings.

The fifth study (Chapter 8) delineates the individual participant (N=104) responses to the micro-based intervention experiment. The findings are that, by their own reports at the end of the main intervention, individuals found the micro easy to use and they had reflected upon many aspects of its potential and how others might be trained to use it. Similarly, with respect to the issues and complexities of record-keeping alone, the participants

appeared to have learned a great deal during the experimental period. This does in fact cross validate the findings in Chapters 5-6 that a very high proportion of functional classrooms were able to complete a demanding set of experimental procedures and a majority were able to do this with a very high level of involvement.

The participants' self-reporting appraisals in Chapter 8 provide some information about their ease of using the micro and their often positive views about its use in the future. However, they did not offer any factual evidence about their willingness, or otherwise, to adapt to the introduction of the new technology into their classrooms. Further, it was not known to what extent the experimental participants were "normal" in the sense of being like the majority of their colleagues in terms of their background experience and qualifications.

The sixth study (Chapter 9) contributes to the thesis by providing a survey of experimental group participants and another group of nursery assistants and teachers. The findings are that the two groups were sufficiently similar in terms of their background qualifications and experience for even greater credence to be given to the Chapter 5-8 results; i.e. there is no reason to suggest the experimental group were unusual in any way. The responses of the comparison group showed that they were less likely than the experimental group to have thought about using micros for

record-keeping. The experimental group possessed realistic expectations about the introduction of micro-based record-keeping and the demands that this might make on them.

In analysing the results of the survey as a whole, the use of micros in nurseries was found to be low on the list of in-service or research funding priorities for most respondents. Despite this, an attitude of flexible tolerance was expressed in that most respondents said they would be willing to work outside set hours for the sake of change towards micro-based record-keeping. This finding is paralleled not by an expectation of increased status to accompany such extra effort, but merely the maintenance of their existing status levels. So there appears to be no need for extrinsic rewards to help ease the introduction of the new technology into nurseries. It was not known, however, whether the status of nursery staff (assistant versus teacher) would have an effect on ease of implementation through differing attitudes towards a curriculum-related change.

The last section of Chapter 9 investigates separately the nursery assistant and teacher responses to the experimental intervention. It is revealed that the nursery assistants were less likely to believe that micros would be used in nurseries in the future and that nursery children would use them. The comparison survey data was also analysed by status and shows that the assistants did not rate

record-keeping very highly. They also declared that they would not be willing to work outside set hours. Therefore, the introduction of micro-based record-keeping would need to take account of such differences.

The summary of the thesis has been provided so that the general issues which revolve around topic, method, and findings can now be discussed. Rather than recount the discussions already provided in Chapters 3-9, this final discussion will concern itself with the four main themes: nursery teacher and nursery assistant professional differences; the future possibility of micro-based record-keeping - disadvantages as well as advantages; the content and purposes of record-keeping itself and the related issue of training for record-keepers; and finally the research method which was used in the research topic and its appropriateness.

It is revealed in the findings of Chapter 9 that nursery assistants do differ from nursery teachers in terms of some of their attitudes and responses i.e. in much more than merely their initial qualifications and education. The implication of this is to open up the question of whether the presence of two differing viewpoints help or hinder nursery practice generally. Chapter 5 found that clearly different perceived roles for assistants were more favourable to experimental outcomes. If this finding were to be generalized to everyday practice as well as

experimental outcomes, then the recommendation would be that under normal circumstances nursery assistants should not run their own classrooms unless it is the intention that there should be two different forms of provision (that provided by teachers and that by nursery assistants).

The assistants in this study appeared less willing for curricula change in terms of using the new technology in nurseries to help with record-keeping, and as micro-based drawing and learning devices for the children. It could also be speculated that nursery assistants might be less in favour of curriculum innovation and less capable of curriculum development and innovation generally. Such speculation would require a further investigation in order to test the hypothesis that nursery assistant and nursery teacher attitudes are different from each other in relation to many aspects of practice.

The next issue is of micro-based record-keeping. Micros for nursery record-keeping may prove to be time-saving, efficient and comprehensive tools for the future. A counter argument against their use is the degree of inconvenience that they cause; it can be more troublesome to get out even a pocket calculator to do sums than to use mental arithmetic or pencil and paper. Where the calculator or computer come into its own is with complicated operations such as long division, some multiplications, the totalling of many numbers, and the tedious repetition of sequences of

operations. Likewise the micro will not find a niche in the nursery until it facilitates the parallel of "long division". This could take the form of drawing and graphically displaying information about children's progress in relation to areas of child development and curriculum provision. The long hand recording of copious notes about a child can be difficult to handle compared with micro-based notes which can be edited at will, and either elaborated upon, or reduced in length and content according to needs.

A disadvantage of micros in 1986 is still their bulk - though this has much reduced over the years - and their relative fragility. It is still much safer in terms of information retention to spill a cup of coffee into a box file system of record cards, or to drop the whole box, than to let a micro or its peripherals crash to the ground.

Intervention experiment participants accidentally destroyed data and irretrievably damaged disks, despite being alerted to the problems. Any magnetic storage medium used in conjunction with a micro system is notoriously frail and subject to damage by rough handling, inadvertant storage near metal objects and magnetic fields, or in conditions of heat or dampness. However, the storage space needed for disks is very small, so back-up copies can be kept unlike paper or card file records which are so bulky that second copies are not usually made. The limited lifespan, initial costs, insurance and maintenance expenses, as well as the

very fragility of micros need to be weighed up and contrasted with cheap and robust paper records.

In relation to the human rather than mechanical problems of micros, further experimental trials appear to be required to discover how micros would help or hinder nursery work over a sustained period of 1-2 years, in the first instance. Such trials could be set up on a small scale with up to 10 nurseries participating, for example. It is suggested here that such a trial could be monitored by the participants themselves in collaboration with an LEA adviser with responsibility for nursery records. The innovatory trial could begin from the interest of the nursery staff in such a development or from an LEA initiative.

As an information base it is conceivable that micros could be used as much if not more than text books that already have been amassed on the early years of education. Micro-based information disks could have the advantage of being the most up-to-date stores of relevant curriculum information and resources which would tie in with any record-keeping system. The psychology developmentalists who have frequently stated their wish "to give their research away" (e.g. Mittler, 1975) would only need to develop their findings into a readily accessible form that could be conveyed as micro-based video or compact disk material with interactive database and search facilities. Such systems would be much more powerful than a text book as the

illustrations would be clear video sequences. Additional features of a comprehensive "expert system" would be the facility for the nursery staff to ask questions pertaining to their work and to get replies on the monitor and/or as printouts. Future conjecture about the use of micro technology into the next decade and beyond have been offered elsewhere (Maddison, 1983; Hawkridge, 1983). Micros could be used as a means of transmitting to colleagues findings, resources, and critical appraisal of the micro-based materials on offer, including pictures, stories, poems, songs and video sequences for the children themselves.

The next theme to be discussed in this final chapter is record-keeping. As was seen in Chapters 3-4 any confusion in purposes in record-keeping appears to create problems. Individual planning of programmes for children and team discussion with staff appear to be the most popular reasons for keeping records. But such purposes for nursery records as "working documents" require them to be better kept and more regularly added to and edited than was found to be the case in the recent HMI survey (DES, 1983). There appears to be scope for the development of pre-service and in-service education programmes to bring staff to the point where they are able to keep records more competently.

The analysis of record form content in Chapter 7 shows only a loose connection with child development theories and, instead, a heavy reliance upon traditional nursery practice

and intuitive understanding of how children behave and interact. It is possible that some of the seemingly flawed record-keeping structures can be of great value in the nursery for a particular purpose, such as encouraging novice record-keepers to begin to keep records at all. What is unfortunate is that such documents may present a poor reflection of the type of work that the nursery staff undertake. During school inspections HMI may criticize the lack of good, clear, and regularly kept records; so lack of good records can hinder the formation of a good image of a nursery and thus records can fail as public relations documents.

However, the good image of a nursery requires much more than the keeping of records. General nursery provision itself must have a much greater priority always than the single aspect of it, which is record-keeping. Even in the 17 functional classrooms of the prior record-keepers in the experiment, described in Chapter 5, record-keeping was found to be very low on their list of priorities in all but one case. Additionally, in Chapter 8, no respondent reported that a very large amount of time should be given to record-keeping. A small amount of time is always likely to be allocated to record-keeping related tasks in nurseries, because of the nature of the general work, which is to spend a great deal of time in close contact with the children. In only a very few instances in the experimental study did the researcher observe any "teaching to the record" i.e. the

record form was dictating the curriculum and encroaching upon many of the activities, for much of the day. These instances occurred in classrooms with a majority of "special needs" children whom it was thought would benefit from a very structured approach to the acquisition of skills and so the curriculum was deliberately modified with the goal of teaching specific skills.

The first priority for records is not usually to provide transfer information for the infant school or details for other professionals. But if infant school staff, health professionals, educational pyschologists, and social workers are to be recipients their involvement is needed both at the design stage and later. This is in order to provide feedback about specific areas of usefulness and the means of improving the selection and presentation of information passed to them.

As yet, parents are rarely shown nursery records and writing records with parents in mind is likely to make new demands upon nursery staff. They may benefit from sharing their ideas about this and their experiences with one another.

It is suggested here that the small amount of time which is normally allocated for records should be spent as productively as possible, ideally completing records that are of the highest quality. This requires very great skills and firm beliefs in the value of records. School-based

courses that staff themselves decide they would like to take part in and to organize could help in this respect and foster attitudes of interest in record-keeping. In-service courses as a whole should not be dominated by record-keeping, just as general nursery work should not be dominated by record-keeping (and this seems to explain its quite low ranking on choices of in-service courses reported in Chapter 9). Nevertheless, regular refreshment programmes are likely to be helpful in developing skills for a task that most people, in the study as a whole, acknowledged to be a very difficult one. For example, small groups of local nursery staff can meet on a regular basis with local schools hosting the meetings. Record-keeping can be discussed when appropriate and linked to the topics in question. Occasional specialist workshops on record-keeping can be held and the nursery staff who are experts in particular methods of assessment and observation can teach their skills to others and share the theoretical and practical problems they have encountered and the resources they have used. The experts can help others in the development and use of their own system of records as well as contributing to the LEA advisers' design and revision of official forms.

The resources which can be made available at LEA and local level for long term use or short term loan may include a pack of items such as those offered during the experimental intervention; for example, a range of LEA official forms, the Keele Pre-school Assessment Guide (Tyler, 1980a), the

NFER Manual for Assessment in Nursery Education (Bate and Smith, 1978), Children's Developmental Progress (Sheridan, 1975), and a guide to systematic observation: "Childwatching at Playgroup and Nursery School" (Sylva et al., 1980).

The final theme of this concluding chapter revolves around the research method and particular features of it. It is suggested that whilst postal surveys are enormously revealing methods of obtaining data, it is helpful when such surveys can be complemented with sustained periods of observation in educational settings. Observations and interviews provide a great deal of information about settings, but even more can be ascertained if the research can be designed to involve a intervention which will catch the interest of the staff and encourage their active participation.

The surprisingly high incidence of non record-keepers found in the experimental study was at variance with that suggested by the results of the national survey of under fives record-keeping (Chapter 3) and the detailed case studies of two Authorities (Chapter 4). When the same questionnaire that was used in the Chapter 3 survey was administered to the person-in-charge of each participating nursery, before commencement of the experimental study, it was found that several people exaggerated their record-keeping practices and declared their nurseries to be regular record-keepers although it was later discovered that

they kept no records at all. It is not entirely surprising that a questionnaire about record-keeping should promote responses about being record-keepers (c.f the famous Kinsey report and the tendency of interviewees to exaggerate, rather ludicrously in some cases, their experience of the topic in question).

It follows, from this, that the research instrument adopted to contrast comparison and experimental group responses to micro technology in the classroom (reported in Chapter 9) may also have fostered positive replies. But, as such effects can only be assumed potentially to have applied to all recipients of the questionnaire, distortion of data must be presumed to be uniform (at least among groups though not among individuals) and thus it can be discounted. The goal in designing the New Tech questionnaire and the other instruments in the Appendix was to offer subjects documents which were clear, interesting, and quick to complete. The high response rates suggest that this goal was achieved.

Careful monitoring of responses and encouragingly written reminders appeared to contribute to the achievement of adequate response rates for all the surveys, in Chapters 2-3 and 8-9. As was suggested in the introduction to this thesis, there does appear to be general interest in record-keeping. Methods of fostering such interest were developed as part of the project. It was known that all the LEA advisers, and nursery staff members surveyed, are

extremely busy people so to encourage them to respond and to "give something back" a total of three newsletters was designed, written, produced, and distributed by the researcher. These newsletters gave original descriptions of resources, reviews of books, and other selected information about the topics of nursery record-keeping and the use of micros in early education.

It is suggested here that such newsletters could be produced to interest all participants in postal surveys of education practice and policy: firstly, as a courteous and sincere "thank you" to the participants, and secondly, as a method of conveying a positive image of research by communicating research ideas and new findings.

Some researchers in the past have made payments of money as "rewards" for any inconvenience caused by their participation in the research. Such rewards, however, seem detrimental to the notion of research as a service and something intrinsically useful to both participants and subsequent readers i.e. not just to the researcher. The newsletters sent to the hundreds of project participants in the present study were not viewed by the researcher as "rewards" but as something constructive.

The "experimental" method adopted for the major investigation of micro-based record-keeping appears to have been a success in terms of its long period of researcher

time in each classroom and the observations and interviews which enabled classification of the classrooms in terms of the key predictor variables. The findings were interesting, as discussed in Chapter 5, and a replication of this particular study (or one in a parallel vein examining another aspect of curriculum-related nursery practice) would be useful if it, too, were to incorporate a clear set of predictor variables to be analysed in relation to an intervention.

It is only slightly surprising that such studies have not been conducted previously. The reason that they have not been designed or embarked upon may be the labour-intensity of them if a sufficiently large number of classrooms (N=30+) are employed. The sample size needs to be this high (and can never be too high) so that the resulting dichotomized variables may be tested for significance in relation to outcomes. Cell sizes in two by two contingency tables become very small and make description of significant findings even more tentative with sample sizes as low as 20 or less (see: Everitt, 1978, for example). However, just as Clift et al. (1981) emphasize that a curriculum should not be "driven" by its record scheme, obviously in most cases research should not be "driven" by a methodological scheme, however much it is commonly used or alternatively has rarity value, or whether it is highly recommended or warned against. In the case of the work undertaken here the research questions were uppermost and the design of the

method and data gathering devices arrived at in order to answer these questions. The method of the main experimental study had not previously been used and thus was breaking new ground. So rather than ending the thesis with points from the reseach findings, qualifications in relation to the experimental research method will be spelt out.

Experience from the present work suggests first that data should be collected for the coding of predictor variables which are relevant to the research questions and their context. Researchers could go beyond the traditional predictor variables of age of staff and size of school, for example, to take account of the qualitative curricular differences.

Second, full documentation of process events during the intervention itself is necessary to enable the recording of responses which occur; these vary from the rare to the more common-place reactions. Such processes may be examined in relation to outcomes and their relative importance considered. Without such systematic recording there is only recourse to the most memorable anecdotes when interpreting bodies of data. The research topic guides the selection of processes which are to be observed and recorded. Selection is necessary because of the variation in and number and range of process events which may occur during an intervention period in a single classroom. The presence or absence of particular process events can add to our

understanding of an intervention and its outcomes in a sample of classrooms. With the older style of studies, the simple inputs and outputs tended to be monitored and the process of the intervention neglected.

The third point concerns obtaining as random a sample as possible for an experimental study. The necessity to seek LEA permission to approach schools usually rules out the possibility of obtaining a truly random sample. A technique to improve the sampling within "LEA permitted schools" entails persuading those selected from the opportunity sample to partipate in the procedures. This may be difficult because the tendency of some schools is not to wish to participate in something in which staff may be involved in a considerable amount of extra work. Nurseries which are eager to participate could well be different from the reluctant ones, and hence a representative cross-section needs to be invited and encouraged to participate. Some means of checking the normalness of the final sample can be helpful.

Fourthly, experimental studies can be backed up by survey techniques to amplify issues that reside in the research topic. Survey techniques can look at practice, as was shown in the national survey (Chapter 3), or they can examine issues in some detail at a finer level (Chapter 4), or provide contrasts with experimental group subjects (Chapter 9).

Bearing these qualifications and their implications in mind, experimental studies of the type described above may be conducted to advantage again in the future.

Postscript

The state of the evolving art of new technology does not appear to have impinged on the validity of this study as a whole. Basically, there is no difference between the machine and suite of programs used for the major quasi-experiment and what is available in the shops and schools of the late 1980's. The software suite was original (for its time) in its combination and construction; but it was obviously the route forward and has been rewritten in many forms by commercial programmers for every machine now on the market. (The researcher predicted this would happen, but was independent of it happening.) What the staff and children learned using that system in their nurseries stood them in good stead for the influx of micros now. All that was required for the study was a robust system of hardware and software that could be carried between towns and cities and stand up to the battering of thousands of children and hundreds of adults, which it did.

BIBLIOGRAPHY

Adelman, C. (Ed.) (1984) The Politics and Ethics of Evaluation. London: Croom Helm.

Ainscow, M. and Muncey, J. (1981) Special Needs Action Programme (SNAP). Coventry: Elm Bank Teachers' Centre.

Armstrong, M. (1981) Closely Observed Children: The Diary of A Primary Classroom. London: Writers and Readers.

Aston, P. Kneen, P., and Davies, F. (1976) Aims into Practice in the Primary School. London: Hodder and Stoughton.

Barrow, R. (1984) Giving Teaching Back to Teachers: A Critical Introduction to Curriculum Theory. Brighton: Wheatsheaf.

Bartram, D. and Bayliss, R. C. (1984) Automated Testing: Past Present, and Future. Journal of Occupational Psychology 57, 221-237.

Bate, M. (1983) Liaison groups in early education. Educ. Research 27, 2, 105-109.

Bate, M. and Smith, M. (1978) Manual for Assessment in Nursery Education. Windsor: NFER.

Bate, M., Smith, M., and James, J. (1981) Review of Tests and Assessments in Early Education (3-5 years). Windsor: NFER-Nelson.

Bayliss, S. (1985) Pre-schooling "case made". Times Educational Supplement, December 27, 1985.

Bayliss, S. (1983) Brent ready with plan to guide parents' access to pupil records. Times Educational Supplement, March 18, 1983.

Becher, T. and Maclure, S. (1978) Politics of Curriculum Change. London: Hutchinson.

Benett, Y. (1980) Teachers attitudes to curriculum innovation: making explicit a psychological perspective. Vocational Aspects of Education XXII, 85, 71-76.

Bennett, N., Desforges, C., Cockburn, A., and Wilkinson, B. (1984) The Quality of Pupil Learning Experiences. London: Erlbaum.

Bennett, R.E. (1982) Applications of microcomputer technology to special education. Exceptional Children 49, 2, 106-112.

Bereiter, C. and Engelmann, S. (1966) Teaching Disadvantaged Children in the Preschool. New Jersey: Prentice-Hall.

Bird, P.J. (1982) The Use of Low Cost Micro-Processor Based Computer Systems in School Administration and Management. Private report to the DES.

Black, H. and Broadfoot, P. (1982) Keeping Track of Teaching. London: Routledge and Kegan Paul.

Black, H. D. and Dockrell, W. B. (1984) Criterion Referenced Assessment in the Classroom. Edinburgh: The Scottish Council for Research in Education.

Blank, M. and Soloman, F. (1969) How shall the disadvantaged child be taught. Child Development 40, 1, 47-61.

Blatchford, P. Battle, S., and Mays, J. (1982) The First Transition: Home to Pre-School. Windsor: NFER-Nelson.

Blatt, B. and Garfunkel, F. (1973) Teaching the mentally retarded. In Travers, R.M,W. (Ed.) (1973) Second Handbook of Research on Teaching. Chicago: Rand McNally.

Blenkin, G.M. and Kelly, A.V. (1981) The Primary Curriculum. London: Harper and Row.

Bloom, B.S. (Ed.) (1956) Taxonomy of Educational Objectives, the Classification of Educational Goals: Handbook 1, Cognitive Domain. London: Longmans.

Bluma, S.M., Shearer, M.S., Frohman, A.H., Hilliard, J.M. (1976) Portage Guide to Early Education. Wisconsin: Cooperative Educational Service Agency.

Bonn, M. (1988) Social Isolation in the Playground. University of Cambridge: Ph. D. thesis.

Booth, T. (1983) Eradicating Handicap. Unit 14 of Special Needs in Education. Open University Course E241. Milton Keynes: Open University Press.

Bowker, D. (1984) The information gap in placement testing. Eng. Lang. Teach. J. 38, 4, 248-255.

Bridges, A. (1977) The Role of Context and Linguistic Cues in Language Comprehension of Pre-school Children. University of Bristol, School of Education: Ph. D. thesis.

Broadfoot, P. (1986) Assessment policy and inequality: the United Kingdom experience. British Journal of Sociology of Education 7, 2, 205-224.

Brown, N. P. (1982) CAMEO: Computer-assisted management of educational objectives. Exceptional Children 49, 2, 151-153.

Bryant, P. and Bradley, L. (1985) Children's Reading Problems. Oxford: Basil Blackwell.

Budoff, M. and Hutten, L. R. (1982) Microcomputers in special education: promises and pitfalls. Exceptional Children 49, 2, 123-128.

Buros, O. K. (1986) Mental Measurements Year Book. Chicago: Rand McNally.

Cameron, R.J. (1982) Working Together: Portage in the UK. Windsor: NFER-Nelson.

Champness, B. and Young, I. (1980) Social limits on educational technology. European Journal of Education 15, 3, 229-239.

Chatwin, R. (1986) Towards an anti-racist assessment of reading. Reading 20, 1, 6-15.

Chazan, M., Laing, A. F., Shackleton Bailey, M., and Jones, G. (1980) Some of Our Children. New Shepton Mallet: Open Books.

Chazan, M., Laing, A., and Harper, G. (1987) Teaching Five to Eight Year Olds. Oxford: Basil Blackwell.

Clark, M.M, (1976) Young Fluent Readers. London: Heinemann.

Clift, P. (1982) Keeping the records straight. Special Education: Forward Trends 9, 4, 14-16.

Clift, P., Cleave, S., and Griffin, M. (1980) The Aims, Role and Deployment of Staff in the Nursery. Windsor: NFER.

Clift, P., Weiner, G., and Wilson, E. (1981) Record-keeping in Primary Schools. London: MacMillan.

Coles, G. S. (1978) The learning disabilities test battery: empirical and social issues. Harvard Educational Review 48, 313-339.

Collins, R. (1979) The Credential Society. New York: Academic Press.

Computer Age (1978) Nursery and infant records on a micro: synopsis of E. Moore's idea. Computer Age March 1978.

Curtis, A. and Blatchford, P. (1981) Meeting the Needs of Socially Handicapped Children. Windsor: NFER-Nelson.

Deale, R. N. (1975) Assessment and Testing in the Secondary School. London: Evans/Methuen Educational.

Dean, J. (1972) Recording Children's Progress. London: MacMillan.

Dearden, R. F. (1968) The Philosophy of Primary Education. London: Routledge and Kegan Paul.

DES (1967) Children and Their Primary Schools (the Plowden Report). London: HMSO.

DES (1975) A Language for Life (the Bullock Report). London: HMSO.

DES (1979) Primary Education in England. A Survey by HMI Inspectors of Schools. London: HMSO.

DES (1981) Education 5-9: An Illustrative Survey of 80 First Schools in England. London: HMSO.

DES (1983) Young Children with Special Educational Needs: an HMI Survey of Educational Arrangements Made in 61 Nurseries. Stanmore: DES Publications.

Doherty, J. and Conolly, M. (1985) How accurately can primary school teachers predict the scores of their pupils in standardised tests of attainment? A study of some non-cognitive factors that influence specific judgements. Educational Studies 11, 1, 41-60.

Donaldson, M. (1978) Children's Minds. London: Fontana.

Dowling, M. (1976) The Modern Nursery. London: Longman.

Dowling, M. and Dauncey, E. (1984) Teaching 3-9 Year Olds. London: Ward Lock Educational.

Dye, J. (1984) Early education matters: a study of pre-school curriculum content. Educ. Res. 26, 2, 95-105.

Elder, R.J., Gourlay, J., Johnstone, M., and Wills, A.R. (1983) Microcomputers in primary education. Prog. Learn and Educ. Tech. 20, 1, 70-75.

Evans, R. and Sparrow, M. (1976) Some new departures in the assessment of early childhood development. AEP Journal 4, 1, 14-20.

Everitt, B.S. (1978) The Analysis of Contingency Tables. London: Chapman and Hall.

Fein, G. and Campbell, P. (Eds.) (1984) Microcomputers and Young Children. New York: Reston.

Ferri, E., Birchall, D., Gingell, V., and Gipps, C. (1981) Combined Nursery Centres. London: Macmillan.

Flynn, R. (1981) Pre-school Observational Research. A Register of British Research with Pre-school Children from 1970 to 1979. The Open University: Early Education Research Group.

French, C. C. (1986) Microcomputers and psychometric assessment. British Journal of Guidance and Counselling 14, 1, 33-45.

Frith, D. S. and Macintosh, H. G. (1984) A Teacher's Guide to Assessment. Cheltenham: Stanley Thornes (Publishers) Ltd..

Frostig, M. (1966) Frostig Developmental Test of Visual Perception. New York: Consulting Psychologists Press.

Furth, H.G. and Wachs, H. (1974) Thinking Goes to School. Oxford: Oxford University Press.

Gage, N.E. (Ed.) (1963) Handbook of Research on Teaching. Chicago: Rand McNally.

Gardner, D.E.M. and Cass, J.E. (1965) The Role of the Teacher in the Infant and Nursery School. London: Pergamon.

Garland, R. (Ed.) (1982) Microcomputers and Children in the Primary School. Lewes, Sussex: Falmer Press.

Geselle, A.L. and Armatruda, C.S. (1949) Developmental Diagnosis. New York: Casell.

Gipps, C.V. (1980) Children's Social and Verbal Behaviour in Nursery Schools, Day Nurseries and Combined Nursery Centres: a Study of Teachers' and Nursery Nurses' Perceptions. University of London, Institute of Education: Ph. D. thesis.

Goacher, B. and Reid, M. I. (1984) School Reports to Parents. Windsor, NFER-Nelson.

Goodwin, W.L. and Driscoll, L.A. (1980) Handbook for Measurement and Evaluation in Early Childhood Education. San Fransisco: Jossey-Bass.

Gronlund, N.E. (1976) Measurement and Evaluation in Teaching. New York: Macmillan.

Grossnickle, D.R., Laird, B.A., Cutter, T.W. Tefft, J.A. (1982) Profile of change in education: a high school faculty adopts/rejects microcomputers. Educational Technology June 1982, 17-19.

Gunsburg, H.C. (1977) Progress Assessment Charts of Personal and Social Development (P-A-C) and Progress Evaluation Index of Social Development (P-E-I). London: SEFA.

Halsey, A.H. (1972) Educational Priority: EPA Problem and and Policies. Volume 1. London: HMSO.

Hammill, D.D. and Larsen, S.C. (1974) The effectiveness of psychological training. Exceptional Children 41, 5-14.

Harrow, A.J. (1972) A Taxonomy of the Psychomotor Domain: A Guide for Developing Behavioural Objectives. New York: McKay.

Hawkridge, D. (1983) New Information Technology in Education. London: Croom Helm.

Hodges, L. (1981) Out in the Open. London: Writers and Readers.

Hofmeister, A.M. (1982) Microcomputers in perspective. Exceptional Children 49, 2, 115-121.

Hohmann, M., Banet, B., and Weikart, D.P. (1979) Young Children in Action: A Manual for Preschool Educators. Ypsilanti, Michigan: High/Scope Educational Research Foundation.

Hughes, M. (1977) Egocentrism in Pre-school Children. University of Edinburgh: Ph. D. thesis.

Hughes, M., Macleod, H., and Potts, C. (1984) The Craigmillar Turtle Project: Logo with Six Year Olds. University of Edinburgh: Department of Psychology.

Illingworth, R.S. (1977) Basic Developmental Screening. Oxford: Blackwells.

Isaacs, S. (1930) Intellectual Growth in Young Children. London: Routledge.

Isaacs, S. (1933) Social Development in Young Children. London: Routledge.

Jackson, S. (1974) A Teacher's Guide to Tests and Testing. London: Longman.

James, C. (1981) Record keeping in the nursery class. Nursery Newsletter (ILEA) 22, 7-10.

Jeffree, D.M., McConkey, R., and Hewson, S. (1977) Let Me Play. London: Souvenir Press.

Jeffree, D. and McConkey, R. (1976) Let Me Speak. London: Souvenir Press.

Jones, K. and Dukes, T. (1983) Microcomputers in school administrative management. Educ. Technology March, 1983, 38-39.

Judd, J. (1986) Right-wingers in move to sell off state schools. The Observer March 2, 1986.

Kelly, A.V. (1982) The Curriculum. London: Harper and Row.

Kennedy, G. (1985) Micros and early learning. In Fairbrother, R. (Ed.) (1985) Greater Manchester Primary Contact Special Issue No. 3 "Microcomputers".

Kent County Council (1980) Education Vouchers in Kent: A Summary of the Feasibility Study for Kent County Council and Its Conclusions. Kent: The County Council.

King, R. (1978) All Things Bright and Beautiful. London: John Wiley and Sons.

Kirk, S.A., McCarthy, J.J., and Kirk, W.D. (1968) The Illinois Test of Psycholinguistic Abilities. Illinois: University of Illinois Press.

Krathwohl, D.R. et al. (1964) Taxonomy of Educational Objectives: the Classification of Educational Goals. Handbook II, Affective Domain. London: Longmans.

Krebs, K.A. (1972) An Ethological Study of Dominance Behaviour in Young Children. University of Oxford: D. Phil. thesis.

Kyriacou, C. and Newson, G. (1982) Teacher effectiveness: a consideration of research problems. Educational Review 34, 1, 3-11.

Lawton, D. (1983) Curriculum Studies and Educational Planning. London: Hodder and Stoughton.

Letwin, O. (1987) The Education Bill. Panorama 2 November, 1987. London: BBC1 Television.

Lomax, C.M. (1972) Volume Conservation in Young Children. University of Edinburgh: Ph. D. thesis.

Lomax, C. (1977) Record keeping in nursery school: a two-year study. Educ. Research 19, 3, 192-198.

Lomax, C.M. (1972) Volume Conservation in Young Children. University of Edinburgh: Ph. D. thesis.

Lomax, C. (1977) Record keeping in nursery school: a two-year study. Educ. Research 19, 3, 192-198.

McCormick, R., Bynner, J., Clift, P., James, M., Morrow Brown, C. (1981) Calling Education into Account London: Heineman.

McCreesh, J. and Maher, A. (1976) Pre-school Education Objectives and Techniques. London: Ward Lock.

Macintosh, P. (in preparation) Teachers' Responses to Microcomputers in Secondary Schools. University of Oxford: D. Phil. thesis.

Macfarlane, A. (1986) Parents Hold Their Children's Medical Records: Experiment and Review. London: presentation to the Kings Fund.

McKeachie, W.J. (1963) Research on teaching at the college and university level. In Gage, N.L. (Ed.) (1963) Handbook of Research on Teaching. Chicago: Rand McNally.

Makins, V. (1987) Curriculum Cure All? Times Educational Supplement, 2 October, 1987.

Manning, K. and Sharp, A. (1977) Structuring Play in the Early Years at School. London: Ward Lock.

Maddison, J. (1983) Education in the Microelectronics Era. Milton Keynes: The Open University Press.

Matthews, G. and Matthews, J. (1978) Early Mathematical Experiences. London: Addison Wesley.

Medinnus, G. (1976) Child Study and Observation Guide. New York: John Wiley and Sons.

Meighan, R. and Reid, W. (1982) How will the "new technology" change the curriculum? J. Curriculum Studies 14, 4, 353-358.

Miles, M.B. (Ed.) (1963) Innovation in Education. New York: Teachers College Press, Columbia University.

Mittler, P. (1975) Research to Practice in the Field of Handicap. London: Paper presented to the Institute for Research into Mental and Multiple Handicap.

Moore, E. (1978) A study of the Feasibility of Using a Computer-based System in the Nursery/Infant School. Thomas Huxley College, London: unpublished report.

Moore, E. (1980) The Possibility of Using a Comprehensive Computer-assisted Management of Learning System (CML) in the Nursery/Infant School. Thomas Huxley College, London: unpublished report.

Moore, E. (1981) Benefits of CML in infant education. Educational Computing 2, 6, 23-24.

Moore, E. (1985) Microcomputers in the nursery. UPDATE Current Issues in Early Childhood 8.

Morris, B. (1954) The forward to Walker, A.S. (1955) Pupils' School Records. London: Newnes.

National Children's Bureau (1977) The National Children's Bureau Developmental Guide. London: National Children's Bureau.

Nicolson, N. (1967) Harold Nicolson: Diaries and Letters 1939-45. London: Collins. Quoted in Becher, T. and Maclure, S. (1978) Politics of Curriculum Change. London: Hutchinson.

Nuttall, D.L. (1982) Accounting and Evaluation. Block 1 of Curriculum Evaluation and Assessment in Educational Institutions. Open University Course E364. Milton Keynes: The Open University Press.

Oakland, T. (1980) Non biased assessment of minority group children. Exceptional Education Quarterly 1, 3, 31-46.

Oettinger, A.G. (1969) Run, Computer, Run. Harvard: Harvard University Press.

Oliver, R.A.C. and Butcher, H.J. (1962) Teachers' attitudes to education. Brit. J. Soc. Clin. Psychol. 1, 56-69.

Open University (1981) Measuring Learning Outcomes E365 Block 4. Milton Keynes: The Open University Press.

Open University (1982) Curriculum Evaluation and Assessment in Educational Institutions. Open University Course E364. Milton Keynes: The Open University Press.

Papert, S. (1980) Mindstorms: Children, Computers, and Powerful Ideas. London: The Harvester Press.

Parry, M. and Archer, A. (1974) Pre-school Education. London: Macmillan.

Parten, M.B. (1932) Social participation among preschool children. Journal of Abnormal and Social Psychology 27, 3, 243-269.

Parten, M.B. (1933) Social play among preschool children. Journal of Abnormal and Social Psychology 28, 2, 136-147.

Potton, A. (1983) Guides to Assessment in Education: Screening. Basingstoke: Macmillan Educational.

Pring, R. (1984) Confidentiality and the right to know. In Adelmann, c. (1984) The Politics and Ethics of Evaluation. Kent: Croom Helm.

Raggett, P. (1985) It's no secret anymore: curriculum policy in public view. In Raggett, P. and Weiner, G. (Eds.) (1985) Curriculum and Assessment: Some Policy Issues. Oxford: Pergamon Press Ltd..

Ragghianti, S. and Miller, R. (1982) The microcomputer and special educational management. Exceptional children 49, 2, 131-135.

Rance, P. (1972) Record Keeping in the Progressive Primary School. London: Ward Lock.

Raven, J. (1983) The relationship between educational institutions and society with particular reference to the role of assessment. International Review of Applied Psychology 32, 4, 249-274.

Redmond, P. (1987) Grange Hill. October-December series 1987. London: BBC1 Television.

Reynell, J.K. (1977) Reynell Developmental Language Scales (Revised). Windsor: NFER.

Riding, R. and Powell, R. (1985) The facilitation of thinking skills in pre-school children using computer presented activities. Educational Psychology. 5, 2, 171-178.

Rogers, M. (1986) Giving the parents a voice. Times Educational Supplement 7 February, 1986.

Rushby, N. (Ed.) (1976) Computer-managed learning in the 1980's. A Future Study Report. London: Council for Educational Technology.

Rushby, N. (1979) An Introduction to Educational Computing. London: Croom Helm.

Sage, M. and Smith, D. (1983) Microcomputers in Education: A Framework for Research. London: SSRC.

Satterley, D. (1981) Assessment in Schools. Oxford: Basil Blackwell.

Schon, D.A. (1963) Champions for new inventions. Harvard Bus. Rev. 41, 2, 77-86.

Shearer, M.S. and Shearer, D.E. (1970) The Portage project: a model for early childhood education. Exceptional Children 39, 3, 210-217.

Shields, M. (1986) Children's Understanding of Emotions. Paper presented to the BAECE/Child Development Research Group, University of London: Institute of Education.

Sheridan, M.D. (1975) Children's Developmental Progress. Windsor: NFER.

Smith, G. (1975) Educational Priority, Vol. 4: The West Riding EPA. London: HMSO.

Smith, P.K. (1970) Social and Play Behaviour of Preschool Children. University of Sheffield: Ph. D. thesis.

Smith, P.K. and Connolly, K. (1980) Ecology of Preschool Behaviour. Cambridge: Cambridge University Press.

Smith, T. (1980) Parents and Preschools. London: Grant McIntyre.

Spooncer, F. (1984) Testing for Teaching. London: Hodder and Stoughton.

Steadman, S. and Gipps, C. (1984) Teachers and Testing: Pluses and Minuses. Educ. Res. 26, 2, 121-126.

Steadman, S.D., Parsons, C., and Salter, B.G. (1978) Impact and Take-up Project. A First Interim Report. London: The Schools Council.

Steadman, S.D., Parsons, C. and Salter, B.G. (1980) Impact and Take-up Project. A Second Interim Report. London: The Schools Council.

Surkes, S. (1987) Tory policy threatening long INSET courses. Times Educational Supplement 11 December, 1987.

Swann (1985) Education for All - Report of the Committee of Inquiry into the Education of Children from Ethnic Minority Groups. London: HMSO.

Sylva, K., Smith, T., and Moore, E. (1986) Monitoring the High/Scope Training Programme 1984-5. University of Oxford, Department of Social and Administrative Studies.

Sylva, K., Roy, C., and Painter, M. (1980) Childwatching at Playgroup and Nursery School. London: Grant McIntyre.

Taylor, W. (1976) Values and accountability. In Becher, T. and Maclure, S. (Eds.) Accountability in Education. Windsor: NFER.

Thorndike, R.L. and Hagen, E.P. (1977) Measurement and Evaluation in Psychology and Education. New York: John Wiley and Sons.

Tizard, B. (1974) Early Childhood Education. Windsor: NFER.

Tizard, B., Mortimore, J., and Burchell, B. (1981) Involving Parents in Nursery and Infant Schools. London: Grant McIntyre.

Tough, J. (1976) Listening to Children Talking. London: Ward Lock.

Tough, J. (1977) The Development of Meaning. London: Allen and Unwin.

Turner, G. (1986) Nascent Schemes for Teacher Appraisal. Paper presented to AERA, San Francisco.

Turner, G. and Clift, P. (1985) A First Review and Register of School and College Based Teacher Appraisal Schemes. Milton Keynes: The Open University, School of Education.

Turner, G. and Clift, P. (1986) Staff Appraisal. In Hoyle, E. (Ed.) (1986) World Yearbook of Education. London: Kogan Page.

Tyler, S. (1980a) Keele Pre-school Assessment Guide. Windsor: NFER.

Tyler, S. (1980b) The Evaluation of Children's Development in the Nursery. University of Keele: Ph. D thesis.

Walker, A.S. (1955) Pupils' School Records. London: Newnes.

Wallen, N.E. and Travers, R.M.W. (1963) Analysis and investigation of teaching methods. In Gage, N.E. (Ed.) (1963) Handbook of Research on Teaching. Chicago: Rand McNally.

Watson, F.G. (1963) Research on teaching science. In Gage, N.E. (Ed.) Handbook of Research on Teaching. Chicago: Rand McNally.

Webb, L. (1975) Making a Start on Child Study. Oxford: Blackwells.

Whitehead, D.J. (1980) The Dissemination of Educational Innovations in Britain. London: Hodder and Stoughton.

Wilcock, P. (1981) The Portage project in America. In Pugh, G. (Ed.) (1981) Parents as Partners. London: The National Children's Bureau.

Withall, J. and Lewis, W.W. (1963) Social interaction in the classroom. In Gage, N.E. (Ed.) (1963) Handbook of Research on Teaching. Chicago: Rand McNally.

Wood, R. (1986) Aptitude testing is not an engine for equalising educational opportunity. British Journal of Educational Studies 34, 1, 26-37.

Woodhead, M. (1976) Intervening in Disadvantage. Windsor: NFER.

Wragg, E.C. (1982) A Review of Research on Teacher Education. Windsor: NFER-Nelson.

Zigler, E. and Balla, D. (1982) Selecting outcome variables in evaluations of early childhood special educational programmes. Topics in Early Childhood Special Education 1, 4, 11-22.

APPENDIX OF RESEARCH INSTRUMENTS

Great Britain questionnaire

Record-keeping in nurseries and infant schools 1

(When "infant" is mentioned, please also include first schools and first school staff)

Are there written guidelines about record-keeping available to:

	yes	no
infant teachers		
nursery teachers		
nursery assistants		

How often is in-service work on record-keeping offered:

	frequently	occasionally	rarely	never
for infant teachers				
for nursery teachers				
for nursery assistants				

What are the main purposes of record-keeping in your Authority (please give rank order for nurseries and infant classes):

	nurseries	infant classes
as transfer records		
as parent communication aid		
for communication with others		
for nursery team planning		
for planning individual programmes		

What proportion of schools have developed (or adapted) their own method of record-keeping:

	nurseries	infant schools
all		
most		
about half		
less than this		

Great Britain questionnaire continued

How important do staff consider it is to keep written records of each child's progress:

	in nurseries	in infant classes
very important		
quite important		
not important at all		

How do they view the benefits of such records:

	in nurseries	in infant classes
very helpful		
quite helpful		
not helpful at all		

Is there usually liaison between nurseries and feeder infant schools:

quite often	
occasionally	
rarely	

Is a written record of a child's all-round development passed from nursery to infant school:

always	
often	
occasionally	
never	

Do staff show any of their records to the parent concerned:

	in nurseries	in infant classes
always		
often		
occasionally		
never		

Great Britain questionnaire continued

3

Before a child starts at school do the parents complete a form giving details of their child's all-round development:

	in nurseries	in infant classes
always		
often		
occasionally		
rarely		

Do they give later follow-up details about their child's development:

	in nurseries	in infant classes
always		
often		
occasionally		
rarely		

Is there an official Authority record form that includes details about nursery children:

yes	
no	

Who designed the official nursery record:

advisers	
infant teachers	
nursery teachers	
nursery assistants	
others (who?)	

In what year was it first used in its present form:

Great Britain questionnaire continued

4

What proportion of nurseries use the official record:

all	☐
most	☐
about half	☐
less than this	☐

Have there been previous versions of the official record:

yes	☐
no	☐

Please could you describe any previous versions (sending copies if available) and stating reasons for change.

Please could you give details of any past, current, or planned evaluation studies of nursery and/or infant record-keeping in your Authority.

Filled in by:

Position:

Today's date:

Thanks for your help

(A reply-paid envelope is enclosed for the speedy return of this questionnaire)

City and County questionnaire

Please include infant schools and infant school staff in any reference to first schools and first school staff.

Page 1

Please tick appropriate boxes below. Tick as many as you wish and add comments

Who writes the records about individual children?

- Headteacher ☐
- Nursery teacher ☐
- Nursery assistant ☐
- Other professional (who?) ☐
- Parents ☐

When is a child's record started?

- Pre-entry to nursery ☐
- At entry ☐
- After first few weeks in nursery ☐
- After first half term ☐
- Later than this (when?) ☐

Then at what intervals are records made?

- When appropriate ☐
- At regular intervals (please describe) ☐

When is the final record put together?

Who does this?

What form does the final record take when the child leaves the nursery?

What records are sent to the first school?

When are these records sent to the first school?

Are there discussions with the first school staff? (between whom?)

Are records received from other agencies?

- Speech therapist ☐
- Social worker ☐
- Health visitor ☐
- Hospital ☐
- Other (which?) ☐

Who reads an individual child's records? (how often and how many times?)

- Headteacher of the nursery ☐
- Nursery teacher ☐
- Nursery assistant ☐
- Parents ☐
- Headteacher of the first/primary school ☐
- First school reception class teacher ☐
- Others (who?) ☐

City and County questionnaire continued

Page 2

In general what is the response of each of the following to nursery records?

Headteacher of the nursery
Nursery teacher
Nursery assistants
Parents
Headteacher of the first school
First school reception class teacher
Others (who?)

For what purposes are the records used in the nursery and how important are they? Please rank in order of importance.

As transfer records ☐

Parent communication aid ☐

For communication with others. Who? ☐

For nursery team planning. How? ☐

For planning individual programmes. Briefly describe how and how often? ☐

Which types of record are written about individual children?

Profile ☐
Under headings ☐
Check list ☐
Questionnaire ☐

Which of the following do you use?

An LEA standard form ☐

A published system (e.g. Keele or NFER Manual ... state which) ☐

One designed in the school (when and by whom?) ☐

How long have you been using this record-keeping method?

If you had a previous system, briefly, what was this, and what were the reasons for change?

Ideally, how much time would nursery staff like to spend assessing the children?

A lot ☐
A little ☐
None ☐

City and County questionnaire continued

Page 3

In reality, how much time do nursery staff spend assessing the children?

A lot
A little
None

Are these assessments recorded in permanent form?

Often
Sometimes
Never
Not applicable

Ideally, how much time would nursery staff like to spend observing the children?

A lot
A little
None

In reality, how much time do nursery staff spend observing the chldren?

A lot
A little
None

Are these observations recorded in permanent form?

Often
Sometimes
Never
Not applicable

How long has the nursery been open?

Who works in the nursery? Please give names and how long each has each worked in the nursery.

Headteacher

Nursery teacher(s)

Nursery assistant(s)

Are there currently other adults in the nursery? Who and when?

NNEB students
Student teachers
YOPS participants
Parents
Others (who?)

What is a child's normal age of entry to the nursery?

At what age does a child transfer to first school?

How many full-time children are there in the nursery?

How many part-time children are there in the nursery?

City and County questionnaire continued

Page 4

How many different feeder schools does your nursery have? ☐

What is the structure of a normal day at the nursery?

Can the children move anywhere indoors at the nursery?

How much space is there?

- Too much ☐
- Enough ☐
- Too little ☐

Please describe the noise level:

- High ☐
- Medium ☐
- Low ☐

The project already has 'official' LEA forms, but please can you post a set of any blank record forms ever used and other relevant documentation. An SAE is enclosed for the speedy return of this questionnaire and record forms. Thanks for your help.

Filled in by:

Are you?

- Headteacher of the nursery ☐
- Nursery teacher-in-charge ☐
- Nursery assistant ☐

Today's date:

Appraisal questionnaire

Page 1

Please tick appropriate boxes below and add comments.

Thank you for helping with this project and for filling-in the questionnaire. Please return the questionnaire using the S.A.E..

How quickly did you learn to operate the microcomputer (micro)?

- Very quickly (first go) ☐
- Quite quickly (by end of week) ☐
- Slowly (still uncertain) ☐

How easy was it to operate the micro on your own (with the written instructions)?

- Very easy ☐
- Quite easy ☐
- Difficult ☐

How quickly did you learn to operate Applewriter (the text editing program with one disk in Drive 1 and the need to press ESC twice to move the cursor)?

- Very quickly (first go) ☐
- Quite quickly (by end of week) ☐
- Slowly (still uncertain) ☐

How easy was it to operate Applewriter on your own?

- Very easy ☐
- Quite easy ☐
- Difficult ☐

How quickly did you learn to operate CML (the checklist program with D1 in Drive 1 and D2 in Drive 2 and Y or N answers with further comments)?

- Very quickly (first go) ☐
- Quite quickly (by end of week) ☐
- Slowly (still uncertain) ☐

How easy was it to operate CML on your own (with the written instructions)?

- Very easy ☐
- Quite easy ☐
- Difficult ☐

If the micro was in your nursery for a long period of time would it be?

- Very useful ☐
- Quite useful ☐
- Not useful at all ☐

More specifically, would Applewriter be?

- Very useful ☐
- Quite useful ☐
- Not useful ☐

Would CML be?

- Very useful ☐
- Quite useful ☐
- Not useful ☐

Appraisal questionnaire continued

Page 2

What is the best way of learning how to use a micro? Please rank in order of importance:

Being shown by someone who has used a micro ☐

Having opportunity to practice on own ☐

Having a good set of instructions to follow ☐

In the future do you think the micro will be used for record-keeping?

In all nurseries ☐
In some nurseries ☐
In very few nurseries ☐

In the future, do you think micros will be something for nursery children to use?

Very often ☐
Quite often ☐
Only occasionally ☐

How much would a micro-based drawing tablet (like Versawriter) help nursery children's development?

Very much ☐
Quite a lot ☐
Only a little ☐

What suggestions do you have about any of the following?

A micro system

Applewriter

CML

Record-keeping in general

Record-keeping with a micro

Child observation in general

Recording child observations on a micro

Appraisal questionnaire continued

What suggestions do you have about any of the following?

Learning activities for young children on a micro

Ways of training nursery/first school staff to use a micro

Methods of assessing individual children

How to display information about children (for staff use only)

Planning programmes to maximize each child's potential

Sharing with the parents information about a child's development

Passing on information to the infant/first school

Filled in by:

Today's date:

New Tech questionnaire

Page 1

Please answer each of the following items by ticking the appropriate box(es). Add further notes if necessary. Thanks for your help.

Which of the following in-service courses would you like to attend (if they were offered)? Please rank in order of preference.

art/craft	
science	
music	
use of micros in the nursery	
record-keeping	
working with parents	
roles of staff in the nursery	

How often does your nursery use the following?

	daily	weekly	sometimes	rarely	never used	not available
radio						
record-player						
tape/cassette recorder						
slide/film projector						
TV						
video tape/cassette recorder						
video camera						
photographic/cine camera						
typewriter						
microcomputer						
calculator						
Ceefax/Prestel/Oracle						

How easy do you think it will be for most nursery workers to learn to use a microcomputer (micro) for record-keeping?

very easy	
quite easy	
quite difficult	
very difficult	

How important are the following characteristics in order for staff to change over to micro-based record-keeping?

	very important	quite important	might be important	unimportant
being open to new ideas				
technical/mechanical ability				
understanding maths/physics				
familiarity with typewriter keyboard				

When micro-based record-keeping is introduced how easy do you think it will be for most nursery workers to adapt to changes in routine?

very easy	
quite easy	
quite difficult	
very difficult	

New Tech questionnaire continued

Page 2

How old are you?
18-24 ☐
25-34 ☐
35-44 ☐
45-54 ☐
55-60+ ☐

When micro-based record-keeping is introduced do you think most nursery workers will be willing to work outside their set hours?
often ☐
sometimes ☐
rarely ☐
never ☐

Can you use a typewriter?
with ease (e.g. touch typing) ☐
fairly easily (e.g. with two fingers) ☐
with some difficulty ☐
have never used one before ☐

What formal qualifications do you have?
O levels/CSE's ☐
A levels ☐
NNEB certificate ☐
teaching cerificate ☐
other professional certificate or diploma (please give details) ☐
degree (e.g. BA,BSc,BEd) ☐
higher degree (e.g. B.Phil, MA, MEd, PhD) ☐

For how many years have you worked in a nursery class or nursery school? ☐

Have you worked anywhere other than a nursery class or nursery school?
no ☐
yes (please give details) ☐

Does anyone close within your family or friends work with computers?
no ☐
yes (plese give details) ☐

New Tech questionnaire continued

Page 3

When a new electrical/mechanical item is bought at home do you usually?

try operating the item without anyone showing you how or reading the instructions ☐

read and follow the instructions on your own ☐

give the instructions to someone else to read and interpret for you ☐

get shown how to operate the item and helped with its operation ☐

Do you fix fuses and wire up new plugs etc. at home?

always ☐

sometimes ☐

rarely ☐

never ☐

How often do you use the following at home?

	daily	weekly	sometimes	rarely	never used	not available
radio						
record-player						
tape/cassette recorder						
slide/film projector						
TV						
video tape/cassette recorder						
video camera						
photographic/cine camera						
typewriter						
microcomputer						
calculator						
Ceefax/Prestel/Oracle						

How much would you like to learn about how micros may be used in your nursery?

a great deal ☐

a little ☐

nothing ☐

Would you like to learn a programming language like BASIC, COMAL, FORTH,or LOGO so that you can write your own programs?

yes ☐

possibly ☐

no ☐

Do you think the micro in your nursery will increase your hours in the nursery?

a great deal ☐

slightly ☐

not at all ☐

New Tech questionnaire continued

Page 4

Which of the following uses for micros have you already thought about?

- record-keeping ☐
- stock-taking ☐
- menu planning ☐
- learning games for children ☐
- school accounts ☐
- timetabling ☐
- making lists of children ☐

In the development of your work would you like?

- more responsibilities ☐
- the same amount of responsibilties ☐
- fewer responsibilites ☐

In the future would you be willing to?

- adapt you work routine a great deal ☐
- adapt your work routines a little ☐
- not adapt your work routines at all ☐

Might the introduction of the new technology?

- greatly increase your professional status ☐
- slightly increase your professional status ☐
- not change it at all ☐

To which of the following projects would you most want Research Councils to give funds?

- language development of the under-fives ☐
- helping disadvantaged children in the nursery ☐
- developing new technological aids (for the nursery) ☐
- continuity in early education ☐
- training nursery staff ☐
- using a microcomputer for record-keeping in the nursery ☐
- multi-cultural pre-schooling ☐
- assessing and observing in the nursery ☐

Are you:

- headteacher ☐
- nursery teacher (please give your scale) ☐
- nursery assistant ☐

Please return the questionnaire. A reply-paid envelope is attached. Thank you.

Filled in by:

Today's date:

APPENDIX OF EXAMPLES OF MICRO-BASED RECORD-KEEPING FORMS

Example (a)

Page 1

Name:

Boy/Girl

Date of birth:

Number of terms in the nursery:

Name of first school:

Position in the family:
(e.g. 2nd of 4 children)

Physical disabilities which may affect the child's schooling:

Physical skills.
1. Large muscle control (walking, running, hopping, skipping). Comments:

2. Fine muscle control (use of pencils, pens, crayons, scissors, brush).
Comments:

3. Tendency to use left hand.

Degree of independence (dealing with own clothing and toilet needs).
Comments:

Example (a) cont.

Page 2

Social and emotional development:
(settling at nursery; changes in behaviour; relationships with children and with adults; solitary, parallel, and/or cooperative play)

Cognitive Skills:

Language Development:

Example (a) cont.

Page 3

Does the child adjust to new circumstances easily?	
Does the child use language for personal needs?	
Does the child relate well with other children?	
Does the child relate well with adults?	
Can the child tolerate sharing, taking turns, and winning/losing?	
Can the child select own activities and organize time?	
Does the child play with jigsaws and bricks etc. (structured materials)?	
Does the child take part in creative activities?	
Does the child take part in imaginative play?	
Does the child concentrate at self-chosen tasks?	
Does the child concentrate at adult-imposed tasks?	
Can the child count up to 10 with objects?	
Does the child understand the meaning of numbers from 1 up to 5?	
Can the child sort and describe what has been done?	
Can the child compare (long, short, tall, high, low, wide, narrow, heavy, light etc.)?	
Does the child understand: underneath, above, in front, behind, and beside etc.?	
Does the child ask questions other than making requests?	
Can the child explain and reason?	
Can the child turn the pages of a book and follow the sequence of pictures?	

Filled in by:

Date:

Key:

Y = Yes

S = Sometimes

N = No

Example (b)

boy/girl

name of child

date of birth

English is 2nd language yes/no

1) language development

2) large motor movement

a) balance

b) skipping

c) jumping

3) small motor movement

a) cutting

b) manipulative - puzzles etc

4) social interaction

a) settling

b) 1-1 child, adult

c) 1 to group (leader or not?)

5) pre-reading and writing skills

6) numeracy

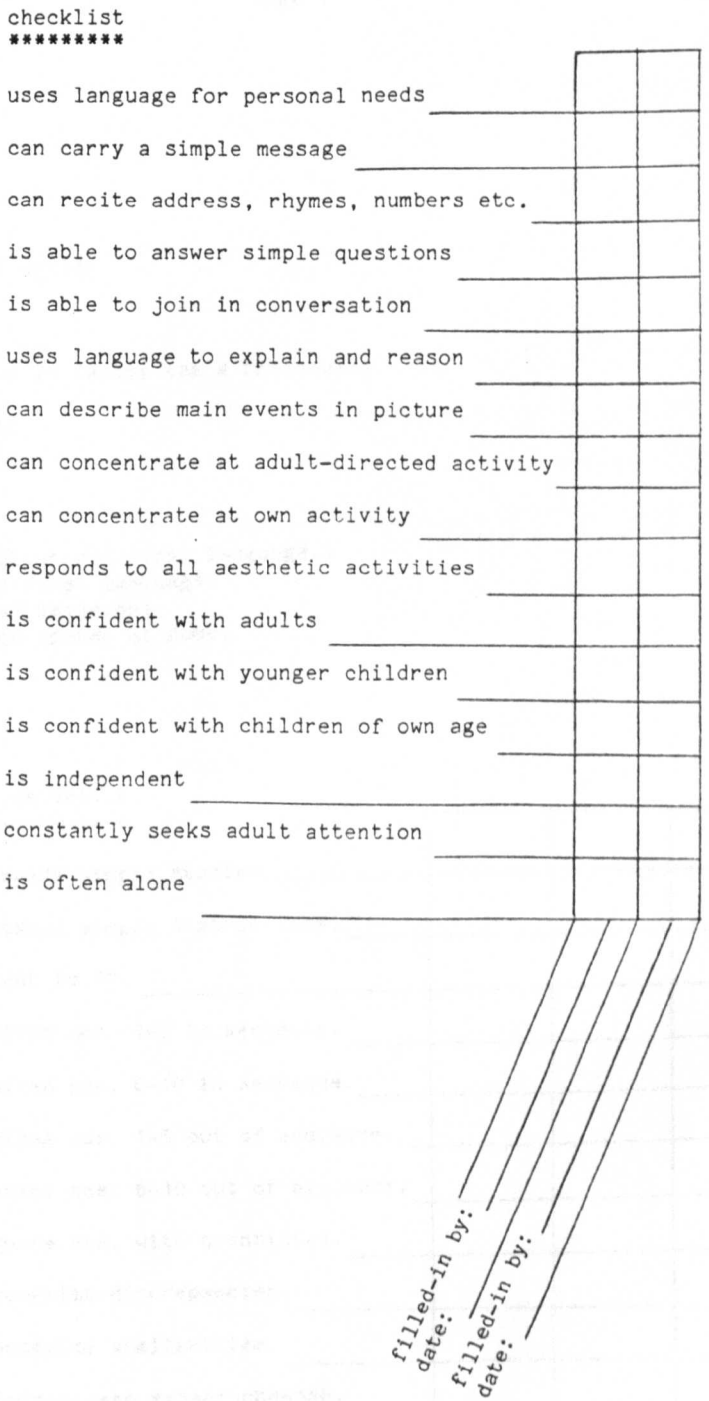
7) colour recognition

a) primary

b) mixes

any other comments

Example (b) cont.



Key:

Y = Yes

S = Sometimes

N = No

Example (c)

Page 1

From:

To:

Name of child:

Sex:

Position in family (as a fraction):

Address:

(If English not first language.)
Child's first language:
Parents' language:
Language spoken at home:

Cognitive Skills.

Understands simple stories.					
Understands simple instructions.					
Can count to 10.					
Recognizes nos. 1-5 in sequence.					
Recognizes nos. 6-10 in sequence.					
Recognizes nos. 1-5 out of sequence.					
Recognizes nos. 6-10 out of sequence.					
Can equate nos. with quantities.					
Can recognize discrepancies.					
Can recognize similarities.					
Can discriminate sense/nonsense.					
Can follow simple reasoning.					

Filled in by:

Date:

Example (c) cont.

Page 2

Aural and Visual Discrimination.

Listens to stories (1 to 1 basis).					
Listens to stories (group).					
Carries out simple instructions.					
Can match colours.					
Identifies most colours.					
Can match shapes.					
Identifies basic shapes.					
Identifies own name.					
Can match sizes.					
Attempts jigsaws.					
Completes jigsaws.					
Completes advanced jigsaws.					
Completes very advanced jigsaws.					
Completes tile pictures.					
Can talk about pictures.					
Puts pictures into logical sequence.					

Filled in by:

Date:

Example (c) cont.

Page 3

Language Development.

Fails to speak in class.						
Makes noises.						
Uses single words.						
Uses short phrases.						
Good vocabulary.						
Good articulation.						
Adequate articulation.						
Uses normal conversation.						
Tells of experiences.						
Gives explanations.						
Gives descriptions.						
Projects into the future.						
Uses prepositions e.g. over,under etc.						
Uses maths. vocabulary - length.						
Uses maths. vocabulary - quantity.						
Uses maths. vocabulary - time.						

Filled in by:

Date:

Example (c) cont.

Page 4

Social and Emotional Development.

Good relationship with 1 child.						
Good relationship with children.						
Good relationship with 1 teacher.						
Good relationship with teachers.						
Range of play - wide.						
Can adjust behaviour to suit occasion.						
Leader.						
Follower.						
Diffident.						
Independent.						
Clinging.						
Withdrawn.						
Lethargic.						
Hyperactive.						
Aggressive.						
Plays alone.						
Settled within 1 month.						
Settled within 1 term.						
Unsettled.						
Very unsettled.						

Filled in by:

Date:

Example (c) cont.

Page 5

Large Motor Control.

Gen. co-ordination - good.					
Gen. co-ordination - adequate.					
Runs.					
Skips.					
Hops.					
Throws a ball.					
Catches a ball.					
Kicks a ball.					
Climbs steps.					
Descends steps.					
Attempts to undress.					
Undresses unaided.					
Attempts to dress.					
Dresses unaided.					
Puts on coat - attempts.					
Puts on coat -unaided.					
Puts on socks - attempts.					
Puts on socks - unaided.					
Puts on shoes - attempts.					
Puts on shoes - unaided.					
Fastens large buttons - attempts.					
Fastens large buttons - unaided.					
Fastens zips - attempts.					
Fastens zips - unaided.					
Fastens buckles - attempts.					
Fastens buckles - unaided.					
Uses toilet satisfactorily.					
Can wash hands satisfactorily.					
Swims 1 width - with floats.					
Swims 1 width - unaided.					

Filled in by:

Date:

Example (c) cont.

Page 6

Fine Motor Control.

Left-handed.					
Holds pencil correctly.					
Has control of pencil.					
Attempts to trace.					
Can trace.					
Attempts to copy.					
Can copy.					
Attempts to write own name.					
Can write own name.					
Draws horizontal lines.					
Draws vertical lines.					
Draws curved lines.					
Scribbles.					
Paints - daubs.					
Paints - representationally.					
Fits constructional toys together.					
Uses scissors - attempts.					
Uses scissors - satisfactorily.					

Filled in by:

Date:

Example (c) cont.

Page 7

Summary Page
****

Cognitive Skills

Aural and Visual Discrimination (e.g. recall of things heard and seen)

Language Development

Social and Emotional Development

Large Motor Control

Fine Motor Control

Example (c) cont.

Additional Observations
****

The page which follows has two photos of the micro equipment which was used in the experimental nurseries.